GAS JOURNAL

LIGHT ✂ HEAT ✂ POWER ✂ BYE-PRODUCTS

(Founded in 1849 as the "Journal of Gas Lighting.")

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Editorial Notes.

Critical Stages of the Mines Bill.

LAST week saw the defeat of the Government in the Committee stage of the Coal Mines Bill, though we would not stress this aspect so much as the subject of the amendment which brought about the adverse vote. The clause rejected was, in effect, what had come to be known as the compulsory levy clause. It proposed to make enforceable at law upon the colliery owners in the several districts any levy which the Central Council of the owners should decide to impose on the production of coal in order to facilitate the sale of certain classes of coal. Though the Government professed to make light of the rejection, and maintained that the clause had not been an essential one, its removal may be welcomed as the deletion of one of the most vicious of all the proposals. It is true that as many colliery undertakings as wish may still combine to subscribe a levy, but none can be forced into a scheme which was patently devised to form a fund, at the expense of the home consumer, by means of which coal could be subsidized for export at lower prices. The disarming suggestion by the Government spokesman that such a levy might be used to give cheaper coal to depressed industries at home received scant respect. The system of even voluntary levies is so distasteful to most of the districts that, compulsion removed, it is safe to assume that it will not extend beyond those who already employ it.

In the present week, the Committee stages of the Bill are to be concluded. Two main obstacles in the form of amendments remain to be surmounted. One, which is said to have the united support of the opposition parties, proposes to omit the clause giving District Committees of owners the power to fix minimum prices. The other issue to be raised is the protection of public utilities—gas, electric, and water—against an abnormal increase in the price of fuel. These are both of vital interest to our industry, and the sting of the Bill may easily be withdrawn on these amendments if national, rather than political, expediency is given fair play. Ministerial circles have let it be known that the deletion of the minimum price clause would inevitably result in the total withdrawal of the Bill, and the Secretary of the Miners' Federation announces that this would undoubtedly be followed by labour troubles in the mines.

We suggest that the Bill, to the open satisfaction of the majority of the nation, and the secret satisfaction of a good many who are being forced to espouse it, may quite well be dropped without any upheaval whatever. The large majority of the coalowners are now quite openly opposed to it in its entirety, as is evidenced by their recent resolution of protest; and we venture to suggest that, at any rate in many of the districts, they would be able to agree with the miners upon such adjustment of working times as would give them their reduction of hours without any loss of earnings. This would prove far more satisfactory in the long run than the short-time working which would be bound to accompany quota and output restriction schemes. In fact, we cannot understand, knowing the disproportionate expense involved in laying pits idle below their full production, how it was ever contemplated that outputs could be reduced by the percentages suggested without forcing quite fantastic prices upon the home consumer.

For Rich and Poor Alike.

IN Glasgow, over 32,000 houses have been constructed since 1918 by the local housing authority or by private builders. In no fewer than 31,000 of them, gas cookers and gas wash-coppers have been installed at the outset, together with an average of one gas fire. In Liverpool, where 20,000 houses have been built under Corporation housing schemes, gas is being used in 99 p.ct. of them for cooking and for heating wash-boilers, and very soon there will be 40,000 gas fires in use in these homes. These figures, which are typical of what is taking place throughout the country, show a remarkable change in the domestic habits of our people—a change all to their good and to that of the gas industry. Yet, in spite of all, the idea is current that the housewives of the nation will have to wait for electricity before they can enter upon the era of the labour-saving home.

Facts will out, of course; but we may well ask ourselves whether, in our individual capacities as members of the gas industry, we are sufficiently active in learning these facts and in letting the public know about them. That they can be learned without trouble must be obvious to all who make proper use of the publications of the British Commercial Gas Association, and every keen gas manager and every modern salesman must appreciate that dissemination of these facts is a pleasurable duty to the whole industry. The particular facts quoted in our first paragraph are from the latest, and certainly a most important, publication of the "B.C.G.A.," entitled "Gas in Public and Private Housing Estates," excerpts and illustrations from which will be found on later pages of this issue of the "JOURNAL." It is a publication which neither salesman nor manager can afford to neglect.

There is one very striking feature about the publication under review—that gas is almost universally employed for cooking and water heating, and to a good extent for heating, in the homes of the people—from houses let at a weekly rental of 8s. 9d. to those costing £3000 to build. It is a realistic picture of the improvement in the worker's home brought about by gas, and of the concomitant improvement in atmospheric conditions; and it refutes the idea that only in some distant future, when this new scheme and that new scheme for the provision of other forms of heat are perfected, will there be comfort, cleanliness, and leisure for those responsible for running the home. These essentials are actually being enjoyed to-day by rich and poor alike—and they depend almost entirely on gas.

Gas and Electricity in Combination.

The argument that the expansion of electricity must necessarily mean the decline of gas is often refuted by reference to the United States, where the running in double harness of gas and electricity is far more usual practice than it has become in this country. The experience that can be quoted is ample to prove definitely the contention that the two commodities are able to march hand in hand to increased prosperity, though it cannot be expected that such an unadventurous method of progression would satisfy every temperament. From time to time, therefore, the old points are bound to crop up, and it is as well to have up-to-date figures at hand with which to combat them.

The most recent statistics to reach the "Journal" are those issued in connection with the Consolidated Gas, Electric Light, and Power Company of Baltimore, Maryland, an undertaking with an annual revenue of more than $28,000,000, of which 214,640 consumers of electricity contributed nearly $18,000,000, and 196,515 gas consumers $9,500,000. These figures represent an increase of 7·98 p.ct. in the case of electricity, and 2·47 in that of gas. The proportions are not quite the same when consumption is considered; for the amount of gas sold in 1929 was 5·47 p.ct. more than in 1928, and the quantity of electricity sold was 10·32 p.ct. more. In the case of gas, this represented a greater improvement in volume than in any year since 1926. The major portion of the increased sales is attributable to the success of the Company in disposing of gas in increasing quantities for central house heating and for industrial uses. It is estimated that over 20 p.ct. of the entire gas sold in 1929 was for these purposes, and it is expected that the ratio of yearly growth along these avenues of consumption will continue to be very satisfactory.

All this shows how stable is the position which the Company occupy; but there is one highly significant statement in the report, which should be kept clearly in mind when thought is given to the figures and facts here quoted. The Directors say: "The fact that the revenue "from gas sales increased at a lesser rate than the volume "is due, in part, to the rate reduction which became effec- "tive on Nov. 1 last, but more particularly to increased "usage at the low inducement rates which have been "established in order to build up industrial and house- "heating business." Evidently it is by offering inducement rates that these satisfactory loads are secured by the Company.

"De-Insularization."

Those whose memory carries them back over any considerable number of years will be able to recall several occasions when the proposal to construct a tunnel under the Straits of Dover has been brought forward in one form or another. All sorts of objections have been set alongside the suggested advantages. The idea has conjured up fears of invasion by armies who would not have to brave the terrors of the deep, while, on the other hand, it has offered to all and sundry the possibility of European travel without sea-sickness, in greater comfort, and at an increased speed, together with the more rapid and more convenient transit of goods. The objection seemed insufficient to hold back the scheme indefinitely if the work presented no insuperable engineering obstacles and if the promised advantages could be secured upon an economic basis.

It was ultimately by the economic aspect that the whole scheme had to be judged, and so a good deal of satisfaction was felt when, about a year ago, Mr. Baldwin appointed a Committee to examine and report upon the proposal from this point of view. The five members of the Committee have examined, and they have reported—with certain reservations on the part of one of the members—that if, as they believe, a Channel tunnel could be built, maintained, and operated by private enterprise at a cost which would permit of the traffic through it being conveyed at rates no higher than those at present in force on the short cross-Channel route, its construction, by creating new traffic and thus increasing trade, would be of economic advantage to this country.

It is no small thing, this matter of a tunnel which would bring France and England into railroad communication. The scheme put forward by the Channel Tunnel Company is estimated to cost £30,000,000, and one knows what a habit such calculations have of going wrong somewhere or other. It is to be hoped that the present proposal may prove an exception in this respect; but in any case it will be some years before the traveller from John o' Groats will be told that he has to change at Charing Cross for Constantinople. This is only one of the things that might happen. Far greater revolutions than this would come about. Indeed, it would be a bold person who ventured to put a limit to the changes that this attack upon our insularity might be expected to bring in its train.

Lucky Mr. Caton.

We regret that we could not see Mr. Caton in the illustrations of the Oxford Gas-Works (or was it of Miss Tallulah Bankhead?) which appeared this week in the Pictorial Press. At the same time few gas engineers can have been fortunate enough to entertain such a celebrated actress amid retorts and condensers. Our readers will observe the qualification.

"Grouse."

To use a time-honoured phrase, "attention has been drawn" to some remarks in an electrical contemporary upon "the precarious plight of our competitors"—gas, of course. It is true that these remarks had already been noticed—at first with some surprise, but finally with some amusement. It seemed so difficult to take them seriously. The writer points out that "in certain districts of London, such as Kensington, the electric distributing authority has wiped out its obsolete plant and mains, and now has a completely new equipment." He then asks, referring to the gas industry: "What is the state of their mains? In all the big cities the same thing is happening more or less. The principal gas mains are often a century old, and no longer consist of pure metal; they have changed into iron oxide." There is no need to harrow the feelings of readers by quoting all the awful details. Suffice it to say that, in face of the official statistics regarding the small percentage of unaccounted-for gas, which are available to all who care to study them, the readers of the paper are assured that the "iron-oxide mains are fractured, holed, or leaking all over London." Do our electrical friends really consider that this sort of thing is playing the "game?"

And Horses.

And so the story proceeds to its climax. "The vested interests of gas are so powerful that no Government of any political hue whatsoever dare attempt to apply their immense profits to the purpose of saving life and limb from bombardment, or providing the public in the danger zone with gas helmets." But if gas helmets, why not rubber gloves and rubber boots? Some such protection on its hoofs would possibly have saved the horse whose fate is thus recorded in the newspaper Press: "A horse, while being taken along a passage at Hoole, Chester, put its feet on some loose earth, and immediately collapsed and died. The carter, astounded at what had happened, put his hand on the horse's nose, and received an electric shock. On investigation it was found that under the soil were some electric wires which had caused the death of the animal. The police were informed, as were also the Chester electricity authorities; and the defect in the wires was immediately remedied. The driver was not seriously hurt." However, there it is. So far from expecting our electrical friends to remove themselves and their papers from the "danger zone," we hope to have them with us for many years to come.

Directors' Remuneration.

Anyone with a full experience of company meetings will be familiar with the shareholder who has doubts as to whether the Directors of his company are not too generously remunerated for the services they render. This type of shareholder is liable to make himself heard at any time, but his real oppor-

tunity is when dividends are conspicuous by their smallness or by their absence. Then he "gets his own back" by questioning the fees of the Board. There has, of course, seldom been any real grounds for his attitude, because an unprosperous company usually entails just as much hard work as a prosperous one, if not a great deal more. The fact that those who administer disappointing concerns can thoroughly well earn any fees they may get has been demonstrated during the past few weeks in connection with various company meetings, the proceedings at which have afforded entertaining reading in the newspapers, though the shareholders involved may have been inclined to regard them from a serious point of view. Like that of the policeman, the Director's lot is not always a happy one.

The Training Curriculum of the Chemist.

At the annual meeting of the Institute of Chemistry, Prof. Arthur Smithells, the President, spoke on the question of chemical training, urging in particular that the burden now put upon the student is excessive and too apt to result in undigested knowledge of what are regarded as the higher things of chemistry, with accompanying neglect of what is more simple and basic. He thinks the time is overdue for a thorough reconsideration of the question. The courses, he suggests, have become congested and the pace is too rapid. He alluded at some length to the ways of teaching and work which prevailed in Bunsen's laboratory at Heidelberg as illustrating the kind of conditions under which, he believes, the early training of the chemist might be more satisfactorily conducted.

Personal.

Mr. CHARLES S. SHAPLEY, President of the Institution of Gas Engineers, has been elected a Member of the Institution of Mechanical Engineers.

Mr. P. C. HOLMES HUNT, of Melbourne, Australia, is paying a flying visit to England. Mr. Holmes Hunt, who is associated with many of the gas undertakings in Australia, is Chairman and Managing Director of the Colonial Gas Association, Ltd. He has been to Calcutta for the wedding of his elder daughter, and he is coming to England before returning to Melbourne. He is expected to arrive on March 24, and to leave London on April 10 next.

The current issue of the South Metropolitan Company's Co-Partnership Journal has a reference to a presentation made by the Co-Partnership Committee, on behalf of the Company's employees, to Mr. THOMAS CURR, as a "token of their esteem, and of their sympathy with him in his enforced retirement." The gift took the form of a fitted leather dressing-case.

Mr. R. WATSON, Doncaster Borough Gas Engineer and General Manager, was last week elected a member of the Council of the Doncaster Rotary Club. He has been an active Rotarian for some years.

The Board of Trade have appointed Mr. JAMES HENDERSON, J.P., of the Frodingham Iron and Steel Company, Ltd., to be a member of the National Fuel and Power Committee, in the vacancy created by the death of Mr. Maximilian Mannaberg.

Mr. A. H. SMITH, who has been for 47 years in the service of the Gas Department of the Coventry Corporation, has been presented by his colleagues with an oak dining table, as a mark of their esteem. Mr. Smith retires under the superannuation scheme and is 65 years of age. He began his long service in the office, and was subsequently appointed Collector, holding that position for 32 years, when he was made Controller of the Meter Department. Mr. P. N. Langford, General Manager, made the presentation, and in doing so said Mr. Smith's motto had always been "Service." Mr. Smith, in reply, expressed pleasure that his work had earned appreciation.

Mr. C. JAGO GREGG, a Director of Messrs. Falk Stadelmann & Co., Ltd., has been appointed President of the Iron, Steel, and Ironmongery Benevolent Association of Scotland. Mr. Gregg, in addition to being well known in Glasgow business circles, has for a long period been actively identified with the Unionist party in his native town.

Extensions at Coleraine.—The Coleraine Borough Council at their last meeting approved of the plans and specifications for the improvement to the gas-works which had been adopted on the recommendation of Mr. J. D. Smith, the Belfast Gas Manager and Engineer; and the clerk was instructed to apply for sanction to a loan of £15,000 for carrying out the work.

Correspondence.

[*We are not responsible for opinions expressed by Correspondents.*]

Inefficient Street Lighting.

SIR,—I have noticed your comments under the above heading in the Editorial Notes of your issue of the 12th inst., and I entirely agree with all you say therein.

While I am most desirous of not attempting to turn to our advantage anything in connection with the unfortunate street fatality to which you refer, I ought at the same time to point out the following in fairness to ourselves.

The fatality occurred in our area of gas supply, but in that portion of it which is under the jurisdiction of the Heckmondwike Urban District Council. That Authority control their own electricity undertaking, and for this reason they replaced a year or two ago the whole of the gas lighting of their streets by electricity, with the exception of three lamps which are not situated near the scene of the fatality.

In regard to that portion of your comments as to the necessity of improving street lighting generally, the streets under the jurisdiction of the Spenborough Council, and in their area of gas supply, are lighted throughout by gas, and their General Purposes Committee at a meeting held last week approved the adoption of a scheme I recommended, which will have the effect of materially improving the lighting of our streets by further increasing and extending the gas lighting.

ARTHUR L. JENNINGS,
Engineer and Manager.

Spenborough Urban District Council,
Gas-Works, Cleckheaton,
March 13, 1930.

Forthcoming Engagements.

[*Secretaries of Gas and Kindred Organizations are asked to assist in making this diary of events as complete and useful as possible by sending the earliest intimation of all meetings.*]

March 21.—LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION.—Meeting at the Westminster Technical Institute. Paper by Dr. H. T. Angus, Ph.D., M.Sc., on "Gas Cooker Oven Ventilation and Hotplate Burner Efficiency."

March 22.—MANCHESTER AND DISTRICT JUNIOR GAS ASSOCIATION.—Joint visit with Yorkshire Junior Gas Association to Messrs. West's Gas Improvement Co., Ltd., and City Justices Meter Testing Station, Manchester.

March 22.—YORKSHIRE JUNIOR GAS ASSOCIATION.—See Manchester Junior Association.

March 22.—WESTERN JUNIOR GAS ASSOCIATION.—Meeting in Bristol. Paper by Mr. S. B. Jones, of Clevedon, on "Coal Testing."

March 25.—MANCHESTER DISTRICT INSTITUTION OF GAS ENGINEERS.—Sixtieth Annual Meeting, Midland Hotel, Manchester, 11 a.m. Luncheon to celebrate Diamond Jubilee of the Institution.

March 28.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS.—Annual General Meeting at the Hotel Cecil, Strand, W.C. 2, 2.15 p.m.

April 10.—SOCIETY OF BRITISH GAS INDUSTRIES.—Council Meeting.

April 11.—NORTH BRITISH ASSOCIATION OF GAS MANAGERS.—Spring meeting at Helensburgh.

April 26.—WESTERN JUNIOR GAS ASSOCIATION.—President's Day. Visit to the Weston-super-Mare Gas-Works, and Annual Meeting.

May 2.—NORTH OF ENGLAND GAS MANAGERS' ASSOCIATION.—Annual General Meeting in Newcastle.

May 16.—SOCIETY OF BRITISH GAS INDUSTRIES.—Annual General Meeting and Dinner, Hotel Metropole, London.

May 27.—NATIONAL GAS COUNCIL.—Annual meeting.

June 2-5.—INSTITUTION OF GAS ENGINEERS.—Annual Conference in Leeds.

"Instruments."—The Instruments Publishing Company, of 1117, Wolfendale Street, Pittsburgh, who publish "Instruments," a monthly publication devoted to the instrument problems of all industries, have issued a special "Calorimetry" number, price 50 cents, post-paid. In it, Prof. S. W. Parr writes on "Calorimetry in America," W. E. Stackhouse on "Calorimetry, Its Importance and Practice in the Gas Industry," Walter Block on "Measurements—Industrial and Scientific," and M. F. Béhar on "Temperature, That Peculiar Thing." Different sections deal with hand gas calorimeters, recording gas calorimeters, bomb calorimeters, B.Th.U. indicators, new instruments, and steam calorimeters. Altogether it is a publication worth having, though it may be remarked that no reference is made to either the Fairweather or the Simmance-Abady recording calorimeters.

Commercial and Industrial.

Stock Market Report.

[For Stock and Share List, see later page.]

Gilt-edged securities were again the dominating feature on the Stock Exchange last week; but there is no doubt that cheaper money is having some effect on Industrials, and a general revival of interest is foreshadowed. Moreover, the low rate at which Treasury Bills were allotted gives rise to the belief that a further reduction in the Bank Rate is imminent.

The Gas Market was certainly more buoyant last week. Prices were well maintained, and in several instances showed a tendency to harden. The Bournemouth 5 p.ct. ordinary and 6 p.ct. preference gained ¼ and ⅛ respectively; Bristol 5 p.ct. maximum rose ½ to 87 on the local exchange; Gas Light 3½ p.ct. maximum ½ to 62; and Wandsworth consolidated advanced 2 points to 109½. Imperial Continental, however, fell a further 3 points to 355.

At the general meeting of the European Gas Company the Chairman referred to the rumour which had been current a year ago concerning negotiations by other interests. He stated that nothing had occurred which would have warranted the Directors making any announcement. The Company's £10 shares now stand at 13, which price includes the final dividend of 7s. free of tax. The yield, after allowing for this and on the basis of the full year's dividend (5½ p.ct.), is £4 6s. 11d. tax free, or £5 8s. 8d. gross.

The Directors of the British Gas Light Company are recommending a final dividend of 4 p.ct. on the ordinary stock, making 7½ p.ct. for the year. At this rate the yield, at the present price of 114½, is £6 11s. p.ct. The Bombay Company are proposing to distribute a final dividend of 4 p.ct., making 7½ p.ct. for the year, against 7 p.ct.

Coal Markets.

Dull conditions still rule generally in the markets, and comparatively little business is passing. As is usual in quiet times, the best qualities are getting most of such trade as is available, and other grades are hard pressed to keep working.

Features on the Newcastle market are scarce. Best grades of coking coal have firmed up slightly to 14s. 6d. f.o.b., against 14s. 3d. last week, a sale of about 50,000 tons having been made to a Belgian firm. But other qualities are freely offered down to 13s. 9d. Second-class gas are likewise weak at 13s. 9d. to 14s. 3d., and the gas coal trade generally is very quiet. Wear specials are nominally 17s., and best qualities 16s., with little business passing to test quotations.

In Yorkshire, the increase in the export subsidy appears as yet to have brought little additional demand, and prompt trade is quiet, while inquiry for forward positions is disappointing. The official export price for screened gas coal is given as 17s. 3d. to 17s. 6d. f.o.b. Foreign exports from the Humber for the week ended March 4 were 104,475 tons, as compared with 139,192 tons in the corresponding week of last year.

The gas coke trade is very quiet, and 21s. to 21s. 6d. seems to be the average ruling value.

Trade Notes.

Stanton Cast-Iron Pipes.

The March stock list of cast-iron pipes issued by the Stanton Ironworks Company, Ltd., of Stanton, near Nottingham, contains full specifications of the firm's varieties of cast-iron pipes, together with details of special castings, socket and spigot tapers, &c.

"K.-B." Drying Plants.

From Messrs. James Keith & Blackman Company, Ltd., we have received a copy of the firm's latest booklet on the subject of drying plants. It contains full specifications, together with photographs and diagrams of types of apparatus for various drying operations.

New Plant for Ascot.

The Woodall-Duckham Vertical Retort and Oven Construction Company (1920), Ltd., have received an order from the Ascot District Gas and Electricity Company for an installation of six continuous vertical retorts, having a daily gas-making capacity of half-million c.ft. The contract includes the supply of coal and coke handling plant and waste-heat boiler.

"W-D" Intermittent Vertical Chambers for Southall.

The Gas Light and Coke Company have placed a further contract with the Woodall-Duckham Vertical Retort and Oven Construction Company (1920), Ltd., for a second installation of "*W-D*" intermittent vertical chambers at their Southall Station, capable of producing about 4,750,000 c.ft. of gas per day from average Durham run-of-mine coal. The new plant will consist of two benches, each containing twenty-four chambers, and will be complete with the requisite coal and coke handling plant and a waste-heat boiler.

Suspension Lighting.

The London Electric Firm, of Croydon, have published a leaflet describing and illustrating their suspension system and lowering gear for street lighting. The firm's system is to be found in the City of London, Glasgow, Manchester, Hove, Weston-super-Mare, Eastbourne, Paignton, Windsor, Staines, Liverpool, Bristol, Hull, Chatham, Guildford, Hertford, Boston, Egham, Brixham, Wandsworth, Lewisham, &c.; also in conjunction with Sugg "Rochester" lamps at Aalborg (Denmark), Bombay, Hong Kong, St. Heliers (Jersey), Newbury, Bridgwater, Glastonbury, Romford, &c.

Current Sales of Gas Products.

The London Market for Tar, Tar Products, and Sulphate.

London, *March* 17.

There is no change in the prices of tar products.

Creosote for export is 6¼d. to 6½d. per gallon.

Pitch is 47s. 6d. per ton f.o.b.

Pure toluole is 2s. 5d. to 2s. 6d.; solvent naphtha, 95/160, about 1s. 5d.; pure benzole, about 1s. 11d.; and pyridine bases, 3s. 9d.—all per gallon.

Tar Products in the Provinces.

March 17.

The average prices of gas-works products during the week were: Gas-works tar, 21s. 6d. to 26s. 6d. Pitch—East Coast, 46s. f.o.b. West Coast (f.a.s.)—Manchester, 40s. 6d. to 41s.; Liverpool, 44s. to 45s.; Clyde, 44s. to 45s. Toluole, naked, North, 1s. 7½d. to 1s. 8¼d. Coal-tar crude naphtha, in bulk, North, 9d. to 10d. Solvent naphtha, naked, North, 1s. 3d. to 1s. 3½d. Heavy naphtha, North, 1s. to 1s. 0½d. Creosote, in bulk, North, liquid and salty, 3½d. to 3⅝d.; low-gravity, 1¼d. to 1½d.; Scotland, 3½d. to 3⅝d. Heavy oils, in bulk, North, 5½d. to 6d. Carbolic acid, 60's, 2s. 4d. to 2s. 5d. prompt. Naphthalene, £12 to £14. Salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum 40 p.ct., purely nominal; "B" quality, unsaleable.

Tar Products in Scotland.

Glasgow, *March* 15.

There is no change to report in the prices of any products. Business is very quiet, and any orders received are for comparatively small quantities.

Pitch.—There is so little business passing that value can only be quoted as nominal at about 47s. 6d. to 50s. per ton f.a.s. Glasgow for export, and about 50s. to 52s. 6d. per ton for home trade.

Tar is unchanged at 4d. to 4½d. per gallon free on rails works in buyers' packages.

Creosote.—There are very few orders being placed, and prices are weak. B.E.S.A. specification is 3⅝d. to 4¼d. per gallon; low gravity, 3d. to 3½d. per gallon; neutral oil, 3d. to 3½d. per gallon—all f.o.r. works in bulk.

Cresylic is in fair demand for prompt delivery, and prices are steady. Pale 97/99 p.ct. is 1s. 8¾d. to 1s. 9¾d. per gallon; dark 97/99 p.ct., 1s. 7¼d. to 1s. 8¼d. per gallon; pale 99/100 p.ct., 1s. 11½d. to 2s. 0½d. per gallon; high boiling, 1s. 10d. to 1s. 11d. per gallon—all *ex* works.

Crude Naphtha.—The nominal value is unchanged at about 5½d. to 6d. per gallon.

Solvent naphtha is very quiet at 1s. 2½d. to 1s. 3½d. per gallon for 90/160 grade, and 1s. to 1s. 1d. per gallon for 90/190 grade.

Motor benzole remains steady at 1s. 6d. to 1s. 6½d. per gallon f.o.r. works naked.

Pyridines are nominal at 4s. 3d. to 4s. 6d. for 90/140, 3s. 3d. to 3s. 6d. for 90/160, 2s. 6d. to 2s. 9d. for 90/180, and about 1s. 6d. to 2s. for 90/220—all per gallon at makers' works.

Benzole Prices.

The following are considered to be the market prices at the present time:

	s. d.	s. d.	
Crude benzole . . .	0 10 to	0 11	per gallon at works
Motor ,, . . .	1 5½ ,,	1 6½	,, ,, ,,
Pure ,, . . .	1 10 ,,	1 11	,, ,, ,,

Contracts Open.

Ascension and Arch Pipes, Bench Ironwork, &c.

The Penrith Urban District Council Gas Department invite tenders for the supply of ascension and arch pipes, hydraulic main, and bench ironwork. [See advert. on p. 776.]

Coal.

The Silsden Urban District Council Gas Department invite tenders for the supply of gas nuts. [See advert. on p. 776.]

Overseas Opportunities.

[From the Board of Trade Journal.]

United States.

Lap-Welded Steel Pipes and Black and Galvanized Pipes.—H.M. Consul-General at New York reports that a local firm are desirous of forming a connection with British firms in relation to their requirements in respect of lap-welded steel pipes ranging in sizes of 14 in., 15 in., 16 in., 18 in., and 20 in. O.D. conforming to American Pipe Specifications; and black and galvanized pipes of full standard weight. Firms desirous of offering pipes of British manufacture can obtain further particulars of this inquiry upon application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W. 1. (Ref. A.X. 9251.)

In To-Day's "Journal."

Successful Salesmanship.

In his Presidential Address to the Southgate Chamber of Commerce, Mr. S. B. Chandler, Distribution Superintendent to the Tottenham and District Gas Company said: The successful tradesman to-day is the one who not only has the right goods to sell at the right price, but who introduces into his business a personal note, and through the medium of his assistants throws out the suggestion that every inquirer is the one customer he desires to serve. The successful tradesman will, when occasion demands, accept "no" as an answer; over-persuasion never pays. In some of the large public service undertakings the need for real proficiency in salesmen has at long last been recognized, for it is only by the proper presentation of the case (whatever it may be) that anything like success can be achieved. In the gas industry, in particular, special encouragement is given to those who desire to shape their careers along lines in which salesmanship plays an important part.

* * * *

Electricity Claims and National Welfare.

Private enterprise is already supplying in this country electricity cheaper than the loudly-boosted State-subsidized scheme promises to supply it in the future. In at least two huge industrial areas—the districts round Glasgow and Middlesbrough—electricity is cheaper to-day than the national scheme promises to supply it; but cheap electricity (that is, cheap as measured by British standards) has so little effect on industrial productive costs—so little effect on competitive commercial powers—that there is abnormal depression and unemployment in the Glasgow and Middlesbrough districts. This fact utterly destroys the silly theory we are having about cheap electricity, under the national scheme, being able to restore our industries. (Mr. E. T. Good, in a letter to the "Sheffield Telegraph.")

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Gas in Public and Private Housing Estates.

Facts, figures, and photographs reproduced from the latest issue of "A Thousand-and-One Uses for Gas," published by the British Commercial Gas Association, give a fair indication of the extent to which gas is being used in the modern home for heating, cooking, and water heating in preference to all other less practicable, less economical, and infinitely less reliable fuels.

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Construction of the Dry Gas Meter.

This subject is dealt with by Mr. A. W. Sharman, Chief Chemist to Messrs. Thomas Glover & Co., Ltd. He mentions that manufacturers to-day are going to a considerable amount of trouble and research work to reduce the pressure lost in a meter to a practical minimum; and he gives a graph to show the changing pressure losses during the complete cycle of a meter.

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Gas Mains in Concrete Roads.

Mr. A. V. Barraclough, Chief Engineer to the Aldershot Gas, Water, and District Lighting Company, gives evidence in opposition to a scheme of the Aldershot Borough Council for the reconstruction of certain roads in concrete.

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Private Wagon Ownership.

In view of the active controversy on the subject of privately-owned wagons, and of the arguments advanced in favour of their abolition, the Private Wagon Ownership (Parliamentary Bureau) have published a booklet setting out the case for the unfettered retention of privately-owned wagons.

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Practical Gasfitting.

Mr. W. H. Evans, of Newport (Mon.), deals with this phase of the industry's work. He says that the rawlplug is far superior to the plug and wedge method for cleanliness, neatness, and quickness. With the rawlplug, work can be done without mess or damage. The labour saved is at least 60 p.ct.

Topical Items.

National Gas Council.

The Central Executive Board of the National Gas Council met on Tuesday, March 11, at 28, Grosvenor Gardens, S.W.—Sir DAVID MILNE-WATSON, LL.D., D.L., in the chair.

COAL MINES BILL.

It was reported that a deputation from the Conjoint Conference of Public Utility Associations, upon which the National Gas Council was represented, had waited upon the Minister of Mines the previous day. While emphasizing their opposition to Part I. of the bill *in toto*, they had pressed for certain amendments which had for their object a widening of the grounds of appeal against any decision of the coalowners.

LOCAL AUTHORITIES (ENABLING) BILL.

It was stated that this Bill had passed its second reading, and that, through the medium of the Federation of British Industries, the Council were endeavouring to obtain an amendment to the effect that no local authority should be permitted to set up any business in competition with a statutory public utility undertaking. It was thought, however, that the time available for Parliamentary business this session would prevent the Bill being passed into law.

AREA GAS SUPPLY COMMITTEE.

It was reported that the above Committee had heard the evidence of the gas industry on Feb. 24, when representatives had spoken on behalf of the National Gas Council, the Institution of Gas Engineers, and the Gas Companies' Protection Association. The Report of the Committee was now awaited.

DEATHS FROM GAS POISONING.

It was stated that the Report of the above Committee to the Board of Trade had been published on Feb. 15, and that the conclusions and recommendations contained therein should give satisfaction to the gas industry. The main recommendation was the formation of a consultative body representing gas undertakers and manufacturers of pipes and apparatus to institute and encourage research into, and collect information in regard to, the safety and efficiency of the apparatus used in the distribution and supply of gas. The Central Executive Board referred consideration of the conclusions and recommendations to the Committee which had been dealing with this matter on behalf of the Council.

FUSION OF GAS PIPES.

A conference was reported between the Committee of the Council which have been investigating this subject and representatives of the Wiring Regulations Committee of the Institution of Electrical Engineers, which took place on Feb. 25. Mr. F. W. Purse, who presided, had promised to report in favour of greater co-operation between gas and electricity supply undertakings, with a view to remedying the present position.

RATING.

It was reported that on Feb. 28 a deputation on behalf of gas and electricity interests had waited on the Central Valuation Committee over which Sir James Curtis presided. Representatives of the water interests had also been present. The Committee had expressed sympathy with the difficulties experienced by public utilities, particularly in the case of undertakings which extended into more than one county or rating area, and proposed to appoint a Special Committee to see that the recommendations of the Central Valuation Committee were being carried out by rating authorities throughout the country. They welcomed the co-operation and assistance of representatives of public utilities.

ANNUAL MEETING.

It was agreed that the annual general meeting of the National Gas Council should take place this year on May 27, the venue to be decided later. The meeting of the Central Executive Board would take place on the morning of that date, instead of on the second Tuesday in the month.

Society of British Gas Industries.

The Monthly Meeting of the Council of the Society of British Gas Industries was held at 56, Victoria Street, Westminster, on March 6—Mr. C. A. Goodall, Chairman, presiding. Those present were Messrs. H. E. Bennet, Geo. Clark, B. B. Waller, Frank West, F. J. Gould, R. B. Hodgson, J. W. Scott, Ernest West, E. J. Davison (Hon. Secretary), and Arthur L. Griffith (Secretary). Apologies for absence were reported from Messrs. G. J. Jackson, W. J. D. Howell, F. C. Tilley, A. B. Balmford, C. R. F. Threlfall, R. J. Milbourne, H. M. Thornton, George Ewart, D. M. Gibb, and Major Miles, Col. Wilson, and Dr. Smith.

The Chairman referred with regret to the death of Mr. J. G. W. Aldridge, Chairman and Governing Director of Messrs. Aldridge & Ranken, Ltd., and Mr. E. H. Horstmann, Joint Managing Director and Secretary of the Horstmann Gear Company, Ltd., and reported that letters of sympathy had been sent. The members stood as a mark of respect.

It was decided to offer the usual prizes of five guineas and two guineas to the first and second candidates in the City and Guilds of London Institute Examinations in Gas-Works Practice, Gas Supply Practice, and Gas Fitting for the Session 1930-31.

Mr. Philip H. Sugg has been appointed to represent the Society on the newly constituted Technical Committee of the Illuminating Engineering Society.

Matters in connection with the Gas Industries Section at the British Industries Fair, Birmingham, were reported. Mr. F. J. Gould was congratulated on his paper on "Gas Lighting" at the Joint Gas Conference.

The arrangements for the Annual General Meeting and Dinner to be held at the Hotel Metropole, London, on Friday, May 16, under the Presidency of Viscount Cecil of Chelwood, were reported.

Annual Dinner of Messrs. Arthur Duckham Company (1920), Ltd.

The annual staff dinner of Messrs. Arthur Duckham Company (1920), Ltd., took place on March 5 at the Whitehall Rooms, Whitehall Place, S.W. 1. There were about 300 present, and the Chairman of the Company, Sir Arthur Duckham, G.B.E., K.C.B., presided.

In a short speech after dinner, the Chairman reviewed the Company's activities during 1929. He referred to the fact that over 80 contracts had been handled during the year. He also referred to the fact that the Company's staff had grown from 50 in 1912 to 316 in 1929. This growth in staff had necessitated the provision of further office accommodation, which has been secured in a new building adjoining Allington House.

A happy feature of the evening was the presentation to the ladies of pieces of Doulton pottery, burnt in a Woodall-Duckham circular tunnel kiln, one of the Company's latest developments which has achieved great success.

Gas Mains in Concrete Roads.

There has been a Ministry of Health inquiry at Aldershot into the application of the Borough Council to borrow £22,742 for the reconstruction in concrete of Ayling Lane, Ayling Hill, and Church Lane West, to which scheme there was opposition by the Aldershot Gas, Water, and District Lighting Company.

Mr. *A. V. Barraclough* (Chief Engineer to the Company), in evidence, stated that the Company owned a great number of mains in the three roads, varying in size from 14-in. mains, and including pumping mains. These latter were very important, and any delay caused through difficulty in getting at them might have a serious effect on the Borough. He found that practically all the Company's mains would be under the concrete carriageway, and in his opinion they should be moved out of it. Referring to a proposal of the Council to lower the road 2 ft. in one part, Mr. Barraclough said this would mean the mains would also have to be lowered, and he had not found any estimate in the Surveyor's specifications for carrying out such work.

Concrete roads, said the witness, prevented accessibility to underground works; leakages and defects were not discovered so early, and when they were found it was harder to find where the actual leakage was. It also added to the danger to the public, because escaping gas, unable to get through the road surface, was liable to travel under the subsoil and get into houses. Witness said that the cost of reinstatement in a concrete road was 25s. per sq. yard; the cost in a tarmac road was 13s. 5d.; and in a tarred gravel road 10s. 4d. Underground mains should be taken out of concrete highways, because a concrete road, in its proper place, was a good road, and should not be disturbed. It would cost the Company £2000 to alter their mains in these roads, and he considered it unreasonable that the cost should fall on the Company.

It was suggested that there was less chance of fractured pipes in a concrete road, but witness did not agree. "A concrete road, in my opinion," he said, "does not protect the mains better than any other road. There is a resilience in a concrete road, and with heavy traffic that resilience is just as likely to cause damage to underground works laid in the highway."

Lighting and Trade.

In his Presidential Address to the Southgate Chamber of Commerce, Mr. S. B. Chandler, Distribution Superintendent to the Tottenham and District Gas Company, said:

As far as general trade is concerned, there is little doubt as to the beneficial effect of a well lighted district; it has truly been said that trade follows light, and certainly the attractive force of well illuminated streets, pavements, and fascias have a direct bearing upon the shopping activities of the public. Examples of these are not far to seek. Streatham, Brixton, Balham, Clapham, and Walworth come to one's mind as instances where traders have realized the importance of good lighting, and have carried the theory into effect with excellent results. Your own district has not been backward in this connection, and Palmers Green may be regarded as a well lighted district, the shop windows and pavements being adequately illuminated and presenting a feeling of comfort to the general public. A neighbouring district has also realized the value of good lighting and has to a large extent followed the example set by your own district, particularly in connection with parade lighting. Traders with vision (and these are the successful men) do not regard the money spent on well designed lighting arrangements as waste; lighting can, of course, be overdone (and glare should at all times be avoided), but there is no need for this, having regard to the expert advice which may at all times be obtained by suppliers of lighting energy, whose duty it is to serve the public in this respect.

In speaking of salesmanship as applied particularly to the various trades represented by the members of this Chamber, I cannot do better than refer to the remarkable series of lectures held under its ægis by Mr. Ernest Hunt last year. I feel sure that the practical information which Mr. Hunt imparted to his audience, together with the psychological reasoning which he proved as representative of the completion of our lives, must have done an immense amount of good, which will find its reflection in better work and closer attention to detail, as well as improved personal health to all those to whom such message made an appeal.

It has before been said that salesmanship to-day is a matter of policy, personnel, and service. These three form the foundation of a principle. Policy is determined to a large extent by externals, class of business, and so on, personnel largely depending upon (among other things) the ability to select properly, and after selection and appointment to encourage and appreciate. The employer's duty is not completed merely by paying wages. As he takes upon himself the appointing of his staff, his responsibility does not, in my view, end there, for he should interest himself in the welfare of his employees and encourage them to make themselves more valuable to themselves by augmenting their knowledge, thus directly improving their employer's business. As Mr. Hunt said, every post, whatever its nature, is a big job. As an instance, the telephone operator in any undertaking occupies a very important position, for, by the attention given to an inquirer, the whole policy and treatment of customers can be, and often is, determined by the person desiring to do business with the firm.

The successful tradesman to-day is the one who not only has the right goods to sell at the right price, but who introduces into his business a personal note, and through the medium of his assistants throws out the suggestion that every inquirer is the one customer he desires to serve. The successful tradesman will, when occasion demands, accept "no" as an answer; over-persuasion never pays. Most big business men have themselves at one time or another been salesmen, for the heads of large firms to-day are experienced not only in the fundamental principles of business, but also have known what it is to act as salesmen themselves in their early days. It is said that salesmen are born and not made. It is necessary, of course, to have personality, the right disposition, and the ability to keep the attention and confidence of the potential customer; but in any event proper education and training are required to amplify and extend these natural concomitants before anything like perfection is reached. In some of the large public service undertakings the need for real proficiency in salesmen has at long last been recognized, for it is only by the proper presentation of the case (whatever it may be) that anything like success can be achieved. In the gas industry, in particular, special encouragement is given to those who desire to shape their careers along lines in which salesmanship plays an important part.

Manchester Regional Joint Industrial Council for the Gas Industry.

The Annual Meeting of the Manchester Regional Gas Industrial Council was held at the Burnley Town Hall on March 4. Prior to the meeting, the members made a tour of inspection of Burnley's new Gas-Works, and were entertained at luncheon in the Town Hall.

In the absence of the Mayor (Alderman H. R. Nuttall, J.P.) and the Deputy-Mayor (Alderman H. Lees, J.P.), the luncheon was presided over by Alderman SELLARS KAY, who extended a cordial welcome to the visitors.

Proposing the toast to the Mayor and Corporation of Burnley, Alderman Sir WILLIAM KAY, of Manchester, expressed the hope that there would be a speedy end to Burnley's trade depression. They had a wonderful gas-works in Burnley, of which they could be justly proud. ["Hear, hear."] It had been a great pleasure to him to visit the works and to see them in such a splendid condition.

Councillor LYNCH, a member of the Burnley Gas Committee, proposed the toast to the Manchester Regional Industrial Council, and said he was informed that 90 p.ct. of the gas undertakings in the area were members of the Council. He was also told that all the decisions and recommendations of the Council had been faithfully adhered to by both sides. He thought this spoke very well for the organization, and showed what could be accomplished if Whitley Councils were carried on in the spirit they were intended to be carried on. Throughout the country, particularly in the trade union movement, people had been sceptical about the value of such an organization, but he thought that the trade depression of the past eight years was responsible for the fact that Whitley Councils had not grown and developed to a greater extent in different trades throughout the country. At the moment it appeared that both sides were on the defence, and had not time to concentrate their efforts to establishing organizations of this character. He was convinced, however, that on both sides was a desire for industrial peace, and for arbitration as against industrial war. Whitley Councils were established for the purpose of preventing disputes and friction. In considering the success of this Council he thought it was due to a great extent to the fact that the gas industry was sheltered, and not affected like other industries, such as cotton and coal, by rapid movements which affected wages and conditions. They had, however, every reason to be proud of their record. He did not think there had been any serious disputes in the gas industry, and he hoped this record would continue, and that their future efforts would meet with the greatest possible success. [Applause.]

Mr. ROSS (Chairman of the Council), in responding, said he could assure Councillor Lynch that, though there had not been an official strike in the industry, they had had their difficulties and disagreements; but they had realized that, while they could not always agree, they could do the nobler thing and agree to disagree. ["Hear, hear."] He had been entertained that morning by the visit to Burnley's new works. To him, as an old gasworker, it was a revolution of what existed thirty years ago. There had certainly been progress, and there was only one aspect which sometimes disturbed him. When he looked back on the number of men previously employed and saw the small number employed to-day he realized that somebody must have been thrown out of work. They would have to have them on the dole or on the rates, and one of the questions they would have to consider was whether to cut down the hours from eight to six a day.

Alderman PHILLIPS, J.P., the Vice-Chairman, and Chairman of the Salford Gas Committee, also responded, and said that he, too, had been a member from the beginning. He spoke of the time when employers and workmen thought their interests were not the same. The advent of the Whitley Council had, however, been an education. It was thought at first that the Councils should have compulsory powers. They did not see that the main motive for the whole thing was conciliation and agreement, and a fair understanding between the two sides. They had now been in existence twelve years, and had been operating during the whole of that time, so it was fair to say that they had done good. He thought they could fairly claim that their Council had been one of the most successful of all Whitley Councils in existence.

Mr. S. TAGG (Preston Gas Engineer) moved a toast to the Burnley Gas Undertaking, and referred to Burnley as the Lancashire Mecca of the gas industry. He said that the responsibility of a gas committee had been considerably increased with the advent of a newer competitor, and it required some courage to expend large sums of money on modernizing a plant to give the community a cheaper supply of gas. The thanks of the gas industry were due to those administrators who had the courage to spend money in taking steps to ensure an economic supply of gas to the community. Burnley had been fortunate in its Engineers. ["Hear, hear."] The name of Leather was known beyond the confines of Lancashire, for he had made notable contribution to the technical advancement of the industry. ["Hear, hear."] He was sure they all deplored the untimely accident which cut short Mr. Leather's period of retirement. In Mr. Leather's successor the Burnley Gas Committee had a man of great capacity, and his works were a testimony to his knowledge of engineering matters. [Applause.]

Councillor WILLIAMS, J.P. (Organizing Secretary of the National Union of General Workers), supporting, said that in the old days the gasworkers were referred to as the "submerged tenth," and even inside the works they were treated with little respect. If they compared the conditions of those days with those at the Burnley Gas-Works to-day they would agree that there had really been a revolution.

Councillor T. WHITAKER (Vice-Chairman of the Burnley Gas Committee), in responding, said that his Committee and the Town Council recognized the value of the work being done by the Regional Council to smooth matters over in the gas industry. He assured them that the Gas Committee kept in mind those whose services had to be dispensed with on the completion of the new works, and the Town Council also had them in mind when they adopted a superannuation scheme. [Applause.]

Mr. J. H. CLEGG (Burnley Gas Engineer) also responded, and pointed out that the number of men employed at the works to-day was practically the same as eight years ago. It was unfortunate that some of the men had to be dispensed with because they were not suited to the work, but, of 300 employees, they had 60 who were over 60 years of age. Most of the men were provided for, and he thanked Mr. Williams for his help in elucidating this problem. He spoke of the erection of the new gas-works, and said the idea was first conceived by Mr. Leather, but turned down in 1912. Since they were completed in 1927 the price of gas had been considerably reduced to the consumers, and he had no doubt that the temporary standstill which they were experiencing in Burnley at present would shortly be ended, and they would again expand. The gas industry had a great field before it, particularly in industry.

The Case for Private Wagon Ownership.

In view of the active controversy on the subject of privately-owned wagons, and of the arguments advanced in favour of their abolition, the Private Wagon Ownership (Parliamentary Bureau), 26, Domine Lane, Rotherham, have published a booklet setting out the case for the unfettered retention of privately-owned wagons.

It is pointed out that wagons of different types must be available for coal for shipment or bunkering, according as it is sent to the Humber, the Mersey, the Tyne, or the Bristol Channel ports, for engine coal for industrial works, for steam coal, for use at iron and steel works, for gas coal, for house coal, for coke for blast furnaces and steel making, &c. As to the suggestion that there is waste in hauling back empty wagons which might be loaded on the return journey if the wagons were under unified control, this, it is stated, is untenable. If wagons loaded with coal were sent to Brighton, Blackpool, or Buxton, what product could be brought back from these places? If ironstone is sent into Notts. or Derby to be smelted, it is obviously impossible that the wagons conveying it can be filled with lace or drugs or hosiery for Northamptonshire or Lincolnshire.

When loaded wagons are sent to ports, continues the booklet, the railway companies will not allow them to be loaded back with any goods outside of the mineral class. They insist upon general merchandise being carried in their own wagons. It is essential that every colliery should be assured of a regular and sufficient supply of empties to enable pits to work without interruption. Such interruption, however, would be inevitable if wagons were under the control of an outside staff and dependent upon all manner of traffics, circumstances, and requirements. A pool would seek to limit its supplies to an average normal requirement, whereas the coalowner requires to have reasonable margins to meet exceptional demands. No pool could possibly guarantee adequate supplies such as are now enjoyed under independent ownership of rolling stock. The North-Eastern system of supplying wagons does not ensure a sufficient supply when trade is booming, or when wagons are scarce. It is fallacious to suppose that the dovetailing of North-Eastern wagons with traffic which has taken many years to arrange could be achieved outside of the old North-Eastern district.

The following are further extracts from the booklet:

Privately-owned wagons can be used by the colliery owner for storage purposes. He can thus keep his colliery working during a temporary shortage of orders, thereby saving the cost of unnecessary handling. Railway companies have repeatedly stated that they would never allow their wagons to be used for this purpose. Under the general charging powers of railway companies, the rates include a sum to cover the cost of returning wagons empty. It is prescribed, however, that the transit of empty wagons to the collieries must be between the same points and by the same route along which the loaded trucks travelled. The only purpose of a pool would be to secure that wagons should, on occasion, be forwarded to other collieries and by other routes—this being essential if any economy is to be derived in working. But this is also directly contrary to railway requirements and regulations. It is extremely doubtful whether railway companies would ever agree to a modification of these provisions, as it would involve them in the necessity of recording the movement of every wagon, to ensure that it was not performing unnecessary mileage, and it would seem essential for the purpose of accurate accountancy that similar records should be kept by the pool executive.

However skilful distribution of pooled wagons might be, it could not equal the efficiency and simplicity of the present system. . . . The greatness of England has been built up by individualistic effort, and an irretrievable national disaster of great magnitude will be committed if personal incentive is destroyed by the annihilation of a wagon owning, financing, building, and repairing system which has proved of the greatest advantage to traders in the past and would be the natural corollary of any system of compulsory pooling.

Scottish Eastern Juniors Visit the Gothic Works of Messrs. Thomas Glover & Co., Ltd., Leith.

Members of the Scottish Junior Gas Association (Eastern District) visited these works on March 8, where they were welcomed by Col. Glover, the Managing Director. He remarked that, as this was the first time the Association had visited their works in Leith, he hoped they would spend a profitable and interesting afternoon.

Those present were conducted through the repair shops and stores by Mr. Sam Hall, the Scottish Manager, Mr. Main, the Works Manager, and Mr. Sharman, the Chief Chemist. Particular attention was paid to a demonstration of the cubic foot bottle test by Mr. Tulloch, of the Meter Testing Department.

Interesting brochures dealing with the mechanism and action of the dry gas meter were distributed to the visitors after the inspection. Mr. Sharman then read a paper on "The Usage and Construction of the Dry Gas Meter," an extract from which will be found on later pages. The members were afterwards entertained at tea by the Management of the firm.

Mr. John Scobie, on behalf of the Association, expressed thanks for the welcome they had received and for the hospitality extended; to which Col. Glover replied.

A Gas-cum-Electric Clothes Washer and Boiler.

In the report on the comparative costs of fuels for domestic purposes which was presented at the Joint Gas Conference in Birmingham in February, Mr. A. H. Barker said: I am looking forward to the time when there shall not be a separate electricity supply authority and a gas supply undertaking and coke merchant in one area, but that all shall be parts of the same amalgamated company, and that all members of the staff shall be equally trained in the proper use of all, that the waste and spare products of the gas-works shall be used to generate the electric supply, and that all the resources of the company shall be combined not only to make a profit for the shareholders, but to serve the customer with cheap gas, cheap electricity, and cheap coke—all of which should be carried to every house.

We thought of the foregoing quotation when we inspected a new gas-cum-electric clothes washer and boiler a few days ago. This appliance is called the "Hera;" it is inexpensive, and is manufactured by Messrs. L. G. Hawkins & Co., Ltd., of 30-35, Drury Lane, W.C. 2. The "Hera" is simple in construction. It consists of a robust enamelled tank, through which hot soapy water is circulated by a pump connected to an electric motor (current consumption ½ unit per hour). It is fixed adjoining the sink, so that there is no flexible tubing for the supply of gas employed to heat the water in the tank. The action is entirely automatic, and consequently the housewife has no need to stand over the washer while it is in operation. Soaking, washing, boiling, and rinsing are done in the machine itself; and no mechanical parts of the appliance come in contact with the clothes. The finish of the "Hera," in white enamel relieved by blue, is most attractive.

Deal and Walmer Gas Company's Sports Club.

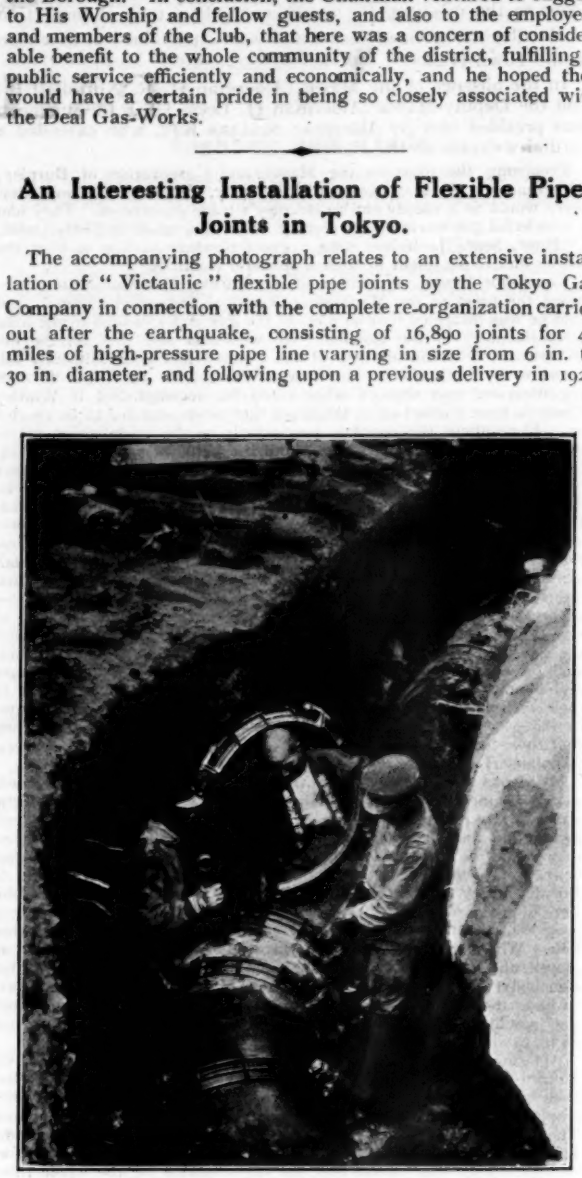
The Fourth Annual Dinner and Social Evening of the Deal and Walmer Gas Company's Sports Club was held at the Masonic Hall, Sondes Road, on Friday, Feb. 28. The President of the Club (Mr. J. F. Tyndall) presided, supported by His Worship the Mayor (Capt. C. P. Davis, C.C.)

Mr. E. H. Hinds, in proposing the toast of "The Deal and Walmer Gas Company's Sports Club," congratulated the Club on their past successes in winning the Deal and District Junior Football League for the second year in succession, and the Deal, Walmer, and District Nursing Cup, and also on a highly successful cricket season by winning 13, drawing 2, and losing 2 of the 17 matches played, and expressed the hope that the Club would carry on in the same way in which they had been doing.

The Chairman proposed the toast of "The Visitors" and referred to the striking progress of the Gas Company. He gave a few facts concerning the Company as a factor in the community, as ratepayers, taxpayers, and distributors of wages. During the year 1929 the Deal Gas Company paid in rates £1345 directly and indirectly, £900 as coal duty on approximately 12,000 tons of coal carbonized at the gas-works to produce 198 million c.ft. of gas, and the usual bye-products therefrom. Exclusive of salaried staff, the amount paid out in wages to employees was £10,532, while haulage contractors were paid about £1650. Furthermore, a benefit fund for workmen who might become too old or infirm for work now stood at £531. The Company's name was on the King's roll for disabled Service men, and, lastly, they supplied gas at a rate that was the second cheapest in East Kent. Thus, during 1929, the Borough funds benefited by the sum of £2245, and weekly wage earners received in wages £12,882 to be spent among the tradesmen of the Borough. In conclusion, the Chairman ventured to suggest to His Worship and fellow guests, and also to the employees and members of the Club, that here was a concern of considerable benefit to the whole community of the district, fulfilling a public service efficiently and economically, and he hoped they would have a certain pride in being so closely associated with the Deal Gas-Works.

An Interesting Installation of Flexible Pipe Joints in Tokyo.

The accompanying photograph relates to an extensive installation of "Victaulic" flexible pipe joints by the Tokyo Gas Company in connection with the complete re-organization carried out after the earthquake, consisting of 16,890 joints for 40 miles of high-pressure pipe line varying in size from 6 in. to 30 in. diameter, and following upon a previous delivery in 1928



of 2000 joints of 24 in. to 30 in. diameter. It shows the laying of one of the 30 in. mains. This particular pipe line was installed under considerable difficulties, as the underground water was often as high as above the centre-line of the pipe. It is the opinion of the Japanese contractors that it would have been utterly impossible to have laid the pipeline in the specified time if the joints had not been on the "Victaulic" principle. The actual joint is made in a minute or two, merely by bolting on an outer covering, as indicated in the photograph. Over 3000 of these 30-in. joints are included in the installation.

Devon County Council and Road Material.

Relative to a circular presented to the Devon County Council on March 6 from the Ministry of Health as to the use of goods and material of home production, Mr. Dobson expressed a hope that the Roads Committee would give it more than perfunctory consideration. He called attention to the fact that in Devon, of the £55,600 spent last year on road tar material, only £14,000, or 26 p.ct., was for English productions.

The Somerset percentage was 50, and the Hampshire 75. Seeing that one-and-a-half million people in this country were out of work, and 3 million people were in receipt of relief, public money should be spent whenever possible on home productions.

The circular was referred to the Roads Committee.

Cricket Club Dinner at Hull.

British Gas Light Company Gathering.

A successful and enjoyable gathering was held at the Grosvenor Hotel, Hull, on Friday, March 7, under the auspices of the British Gas Light Company's (Hull Stations) Cricket Club. The event was a dinner, concert, and prize distribution. About 70 people attended, those present including the President (Mr. Harold E. Copp), Mr. John Young, O.B.E., Messrs. F. C. Robinson and R. T. Weston (Assistant Engineer), and Mr. C. W. Applebee (Hon. Secretary of the Club).

The President proposed the toast, "The Chairman and Directors of the British Gas Light Company, Ltd." They were met together, he said, as a band of sportsmen, and they could take it that the Directors were a band of sportsmen. The Chairman of the Company (Mr. Henry Woodall), took a great interest in the welfare of their Club. He never asked how many matches they had won, but what sort of cricket they played. He (the speaker) always replied they played excellent cricket, and their matches were always well worth watching. He congratulated the team on their Hon. Secretary (Mr. C. W. Applebee), who possessed a genius for organization. He had succeeded in gathering together a most representative assembly, including members from nearly every department. Next year, the British Commercial Gas Association would be holding its conference in Hull, which would make the public of Hull realize that there was such a thing as a British gas industry. The President of that meeting would be the Chairman of their Company (Mr. Woodall).

Responding on behalf of the Club, Mr. P. Proctor said the Club had been extremely fortunate in its Presidents. When playing, the teams never forgot they represented the British Gas Light Company. They tried to carry out the best traditions of the Company.

The health of the guests was proposed by Mr. F. C. Robinson, Mr. G. Braithwaite, junr., responding. The health of the President was drunk at the instance of Mr. R. T. Weston.

Factors Affecting the Problem of Smoke Prevention.

At a meeting of the Institute of Fuel held at the Chemical Society's Rooms, Burlington House, Piccadilly, W. 1, on March 12, Prof. W. E. Gibbs, D.Sc., M.I.Chem.E., read a paper on this subject.

The paper was concerned particularly with the turbid flue gases that result from the combustion of coal, and the author stated that smoke may be defined as a disperse system in which a solid is dispersed in an extremely finely divided condition in a gas, and he pointed out that industrial smoke generally contains particles varying in size. These particles are all very much denser than the gas in which they are suspended, and therefore tend to settle from the gas by gravitation. Settling is retarded by the viscosity of the gas, which increases with rising temperature. The gas itself is generally in turbulent motion along a horizontal or vertical duct of large dimensions, and it is unlikely that under such conditions any but very coarse particles will be removed by settling. It is necessary, therefore, to devise special arrangements for catching and removing the particles. These devices operate with a limited efficiency, so that a considerable portion of the suspended material escapes into the atmosphere.

The author dealt at length with the character and formation of smoke under the headings of: Condensation processes; dispersion processes; coal smoke; concentration of coal smoke, &c. Tables were given showing the percentages of particles of given size in gases with powdered fuel firing, and with various fuels when using chain-grate stokers; and it was shown that smoke consists of a relatively small number of widely scattered, large particles, surrounded by a host of smaller particles, the number of which increases rapidly as their size diminishes, but otherwise is proportional to their concentration. The larger particles may be removed by settling or centrifugal force, but they do not appear to carry any large proportion of the smaller particles with them. The problem of smoke prevention is largely bound up with the problem of bringing about the flocculation of these very fine particles to form larger aggregates which can be removed along with the large particles. Gravity separation, precipitation by centrifugal force, smoke washing, flocculation, electrostatic precipitation, were referred to; but the author stated that it would seem that the cyclone type of separator provides the most satisfactory method of removing finely divided solid matter from large volumes of smoke. At present the efficiency of a cyclone separator is limited, because so much of the solid matter is too finely divided to be precipitated by this means. It is, however, conceivable that, by investigating the properties of coal smoke, it may be possible to devise simple methods for flocculating the finer particles, so that a much greater proportion of the solid matter may then be removed by centrifugal separation.

How Electricity Claims Will Affect National Welfare.

In a letter to the "Sheffield Daily Telegraph" last week, Mr. E. T. Good said:

England is becoming the land of senseless parrot-cries. It was solemnly stated in Sheffield a few days ago (as it is being stated all over the country) that our industrial competitive position can be greatly improved by the general adoption of electricity. We are invited to believe that electricity means cheap production, industrial revival, national prosperity. The national electrification scheme is being boosted. It is being subsidized. Manufacturers, farmers, and householders are being told that their economic salvation lies in electricity. We are being told that our industrial depression is due to the circumstance that we do not use so much electricity, *per capita*, as the Americans, the Germans, the Norwegians, and the Swiss. Could anything be more untrue or absurd?

Private enterprise is already supplying in this country electricity cheaper than the loudly boosted, State-subsidized scheme promises to supply it in the future. In at least two huge industrial areas—the districts round Glasgow and Middlesbrough—electricity is cheaper to-day than the national scheme promises to supply it; but cheap electricity (that is, cheap as measured by British standards) has so little effect on industrial productive costs—so little effect on competitive commercial powers—that there is abnormal depression and unemployment in the Glasgow and Middlesbrough districts. This fact utterly destroys the silly theory we are having about cheap electricity, under the national scheme, being able to restore our industries. . . . What we can have, and what we are getting, is cheap gas, and cheap coal and coke; but the national electricity scheme, under false pretences, seeks to kill or cripple the economical gas industry.

There is this further point. Gas-works use coal in the most economical way known to science. Electricity works are coal wasters. . . . If we are imbecile enough to heed the electricity fanatics, to let the national electrification scheme go forward, to fit all our houses and factories to use electricity, and if we permit the gas industry to be squeezed out, we shall suffer immensely—industrially, agriculturally, domestically. We cannot carry on without the bye-products of the gas-works. Electricity has its place and its uses; but it is not half the good thing its propagandists try to make out, and if we adopted it universally and wiped out the gas-works we should be ruined. Nearly all we see in the papers, and nearly all we hear announced from the platform, about electricity is mistaken, misleading, and mischievous. National electrification would not be a blessing, but a curse, and a disaster in our case.

Price Reduction at Huddersfield.—It is announced that as from April 1 next the price of gas in Huddersfield will be reduced by 1d. per 1000 c.ft. making the price 3s. 1d. per 1000 c.ft.

Cleveland Tar Distillers, Ltd., has been registered as a private Company, with a nominal capital of £5000, to enter into an agreement with S. P. Bowen, D. M. Bowen, and Pease & Partners, Ltd.

Gas Profits to Relieve Rates at Middlesbrough.—The Middlesbrough Town Council Finance Committee have been able to appropriate a sum of £5870 from the profits of the Gas Department in relief of the rates.

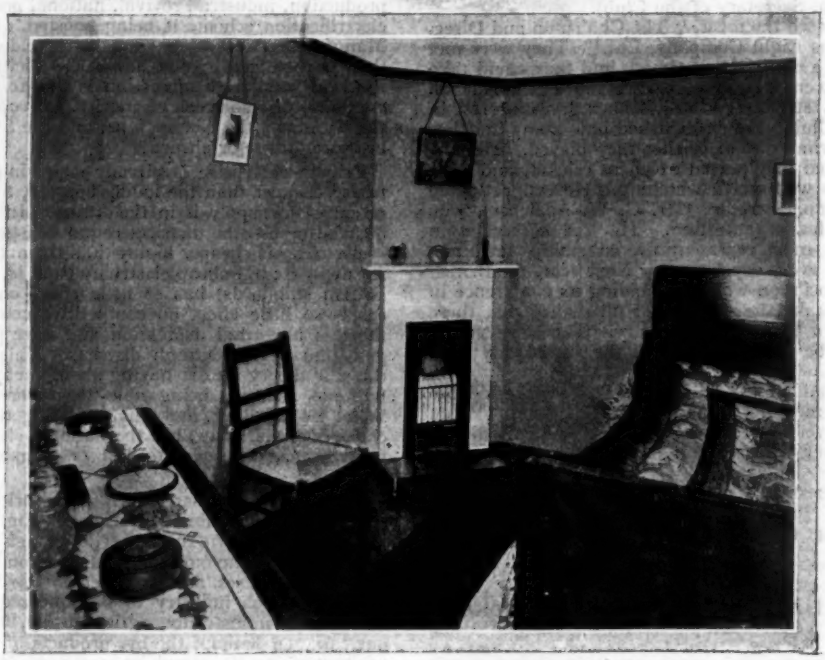
New Share Issue at Godalming.—Messrs. A. & W. Richards, of 37, Walbrook, E.C. 4, are offering for sale by tender, on behalf of the Directors of the Godalming Gas and Coke Company, Ltd., 500 £10 new ordinary shares, ranking for a standard dividend of 7 p.ct., subject to the sliding scale, equally with the existing similar shares entitled to this rate. Tenders for this issue must be received not later than 11 a.m. on Friday, March 21.

Kirton-in-Lindsey Gas Light and Coke was registered as a private Company on March 11, with a nominal capital of £1000 in £1 shares, to acquire the gas manufacturing business hitherto carried on at Kirton-in-Lindsey by the Kirton-in-Lindsey Gas Light and Coke Company. The Directors are: Sir Henry P. Maybury and Messrs. Harry P. Maybury and J. W. Darby. Registered office: The Gas-Works, Kirton-in-Lindsey, Lincs.

Power, Light, and Heat was registered as a private Company on March 10, with a nominal capital of £6500 (1500 preference and 5000 ordinary), to acquire all or part of the preference or ordinary shares of the Crowle Gas Light and Coke Company, Tuxford and District Gas Light and Coke Company, and Tickhill Gas Light and Coke Company, and to carry on the business of suppliers of gas, electricity, coal tar, and other bye-products. Directors: R. W. Merriman and W. E. Taylor. Registered office: Ryton Cottage, Scrooby, near Bawtry.

Gas in Public and Private Housing Estates.

The following extracts are from the latest issue of "A Thousand-and-One Uses for Gas," published by the British Commercial Gas Association. The facts, figures, and photographs following give a fair indication of the extent to which gas is being used in the modern home for heating, cooking, and water heating in preference to all other less practicable, less economical, and infinitely less reliable fuels.



ONE OF THE BEDROOMS AS PROVIDED IN THE 6-ROOMED HOUSES ON THE LIVERPOOL CORPORATION ESTATE AT MATHER AVENUE, LIVERPOOL.

Three built-in gas fires are supplied and fixed as standard equipment in each house, the living room being the only room in which a solid fuel grate is installed.

Some Convincing Figures from Glasgow.

As nearly as can be ascertained 32,199 new houses have already been built or are in course of construction in the Glasgow area by the local housing authority or by private builders since the close of the war. In no fewer than 31,143 of these houses gas cookers and gas wash-coppers are, or will be, installed. Electricity is installed for cooking and for heating wash-coppers in only 1028 houses, and coal is used for similar purposes in 28. In each of 31,143 houses an average of one gas fire has been, or will be, installed. In many cases there are, of course, two or more gas fires.

In addition to the houses already built or being built in Glasgow, the construction of a further 2232 houses has been sanctioned, and in all of them there will be a gas cooker, a gas copper, and at least one gas fire.

Another Example Further South.

In Liverpool, where 20,000 houses have been built under Corporation housing schemes, gas is being used in 99 p.ct. of them for cooking and for heating wash-coppers. Some 37,000 gas fires have already been fixed in these houses, and there will soon be at least 40,000 in use. As typical examples of other installations in the Liverpool area, it may be mentioned that the Bootle Corporation has provided a gas cooker point and fitted a gas wash-boiler in each of 600 houses built under its housing

PART OF THE HOMELANDS BUILDING ESTATE AT CHRISTCHURCH, A PRIVATE HOUSING SCHEME, CONSISTING OF ABOUT 70 HOUSES FITTED THROUGHOUT WITH GAS LIGHTING, COOKERS, WATER HEATERS, AND FIRES.

The houses have been sold, or let at rentals of £1 to £1 5s. per week. All houses built under Municipal and Council Housing Schemes in the area of supply of the Bournemouth Gas and Water Company have been provided with gas lighting and gas cookers, and a large number of them with gas wash-coppers.

PART OF AN ESTATE OF 110 HOUSES BUILT AT NORTHFIELD, TURVES GREEN, BY MESSRS. SUBURBAN HOMES (BIRMINGHAM).

These houses cost only £550 freehold and are carcassed at the outset for gas cooker, gas wash-copper, and gas fires. A gas wash-copper is provided as standard equipment by the builders, as also are gas fires in two bedrooms.

scheme. Over 1100 gas fires have also been supplied and fixed by the Corporation for the tenants of these houses. In 500 of these Bootle houses seven lighting points are provided in each house.

Exterior View of some of a Large Number of Gas-Equipped Houses Built by Messrs. Mactaggart and Mickel on their Estate at King's Park, Glasgow.

SURREY DOES NOT LAG BEHIND.

Coming further South to Surrey, we find that in the area of the Croydon Gas Company there is a total of twenty-three public estates. These comprise altogether 2957 houses, and in them no fewer than 2841 gas cookers, 2369 gas coppers, and 488 gas fires have already been installed. Gas lighting is provided in twelve out of the twenty-three estates.

BOURNEMOUTH HOUSEHOLDERS FAVOUR GAS.

The table in the next column records the points for gas appliances fitted in all new houses in the area of the Bournemouth District Gas and Water Company during the years 1921 to 1928 inclusive.

Surely it would be difficult to find more striking testimony than this to the popularity of gas for domestic purposes among architects, builders, and householders.

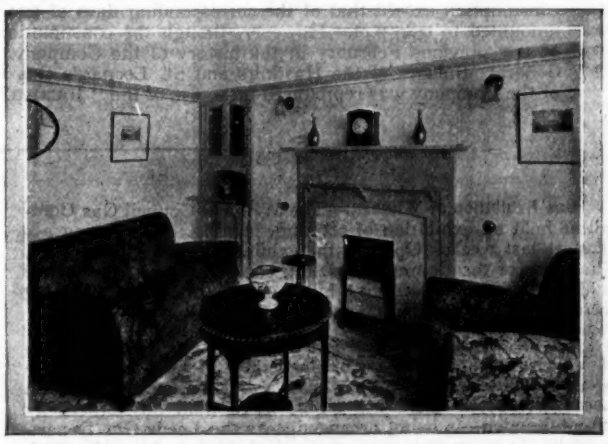
GAS FOR DOMESTIC PURPOSES IN THE MIDLANDS.

Turning now to the Midlands, we find that the Birmingham Corporation have completed 26,600 houses since they commenced building in 1919. All of these have been piped for gas, the appliances fixed and specifications for piping differing with various types of houses. As an indication of what is provided

Yearly Summary of Houses Built and Points Run.

Year.	No. of New Houses Completed.	No. Piped for Gas.	No. Piped for Gas only.	No. Wired for Electricity only.	No. of Gas Points.
1921 . . .	476	457	332	19	2,591
1922 . . .	556	536	355	20	4,027
1923 . . .	808	808	445	..	6,562
1924 . . .	1196	1195	593	1	9,261
1925 . . .	1382	1381	735	1	10,123
1926 . . .	1579	1579	831	..	12,061
1927 . . .	1736	1736	938	..	13,440
1928 . . .	1428	1428	695	..	10,376
Totals . .	9161	9120	4924	41	68,441

in these houses it may be mentioned that 4218 houses were erected by the Corporation during the year ended March 31, 1929. Points were provided in the "parlour" type of house for a cooker, wash-boiler, two gas fires in bedrooms, and one in the parlour. One gas grate and a wash-boiler were provided and fixed as part of the standard equipment. In the "non-parlour" type of house, points were provided for a cooker, a wash-boiler, and two fires. Two gas grates in bedrooms and a wash-boiler were provided and fixed by the Corporation. In



The Drawing Room of one of the Houses at King's Park, Glasgow.

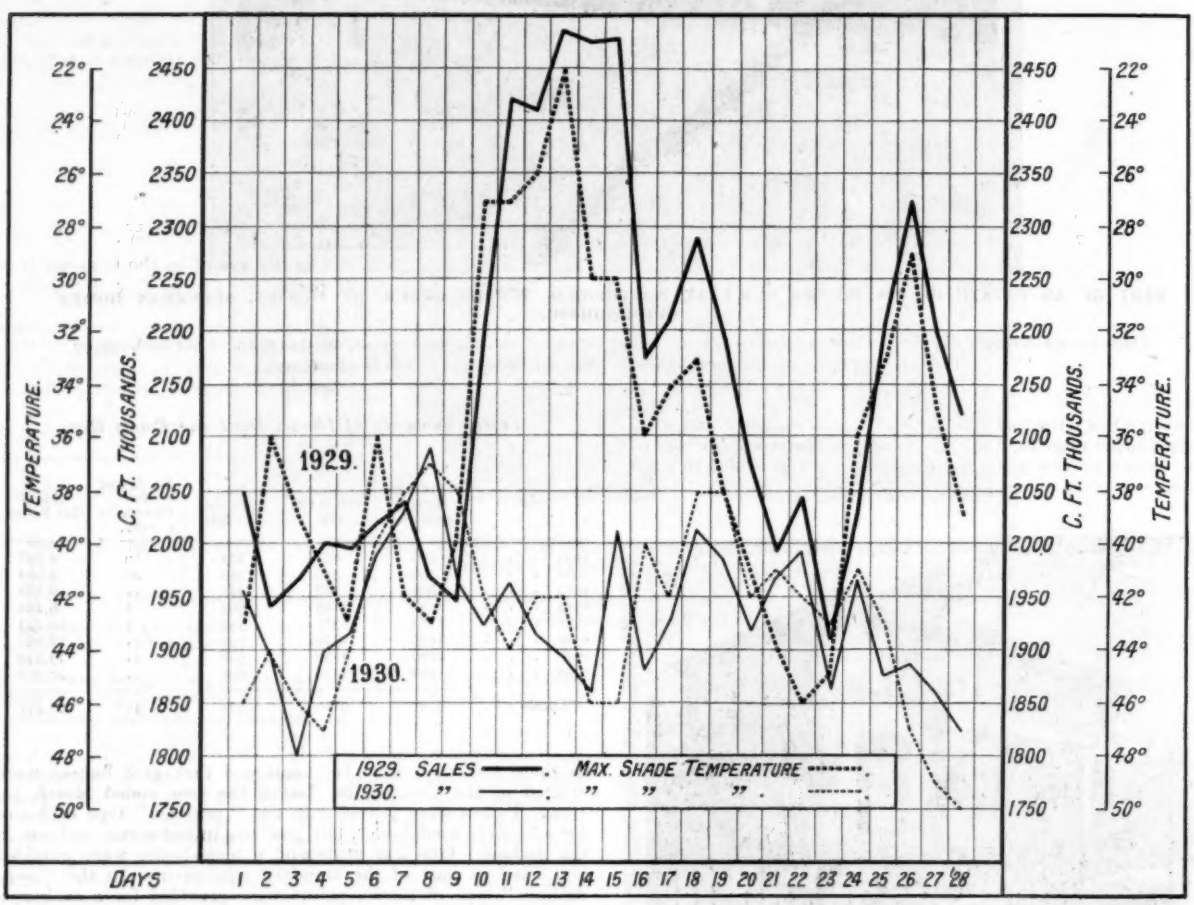
A solid-fuel fireplace of the "Devon" type is provided in all drawing rooms, but the builders have wisely had a gas supply taken to a point near the hearth in every case, so that, should the tenant subsequently wish to have a gas fire, its fixing could be carried out quickly and without disturbance of floor boards.

these non-parlour houses, the wash-boiler is utilized not only for washing purposes, but for supplying hot water to the bath.

Private builders in the area of supply of the Birmingham Corporation Gas Department completed 2407 houses during the year ended March 31, 1929. Of these, no less than 98 p.c. were piped to the specification of the Birmingham Gas Department—namely, for a cooker, a wash-boiler, at least two gas fire positions in bedrooms and one downstairs, and a gas iron or emergency light. In the larger houses provision was also made for the fixing of a gas water heater.

February Sales of the Hastings and St. Leonards Gas Company, 1929 and 1930.

Another Remarkable Chart.



This chart, indicating the sales of gas by the Hastings and St. Leonards Gas Company during February, 1929, and February of this year, shows clearly the relationship between temperature and output. The extreme peak of the heating load due to the abnormal weather in February, 1929, will be noticed. On only two days last month did the consumption exceed that of the corresponding days of last year; and the decrease in output during February last amounted to 9·89 p.c. However, though the consumption shows up badly as compared with 1929, it is in excess of any previous February in the history of the Company. We are indebted to Mr. Chas. F. Botley, Engineer and General Manager of the Hastings and St. Leonards Gas Company, for this interesting graph. The January chart of the Company was reproduced on p. 639 of the "Journal" for March 5.

Gas Exhibition at Withnell.—The Withnell Council Gas Committee held an exhibition of cooking, heating, and lighting appliances last week. Opening the exhibition, Mr. J. O. Farrar, Chairman of the Committee, said a competitor had entered the field in the form of electricity, but so far as cooking and heating were concerned they had no need to fear it.

Honour for Mr. Shapley.—Arising out of the great re-union of V.C.'s, at the invitation of the Prince of Wales some time ago, a further re-union of the V.C.'s of Leeds and district—in Leeds city alone there are eight, more than any other city except London—is being arranged. As the Leeds Gas Department has in its employ some of the city's V.C. heroes, Mr. C. S. Shapley, Engineer and General Manager of the Leeds Gas Department, and President of the Institution of Gas Engineers, is to be one of the few invited guests. Alderman George Ratcliffe, ex-Chairman of the Leeds Gas Committee, has been invited by the V.C. promoters to preside.

Tenders for Weston-super-Mare Stock Issue.—The issue of £30,000 6 p.c. redeemable preference stock which was offered by Messrs. A. & W. Richards, of 37, Walbrook, E.C. 4, on behalf of the Directors of the Weston-super-Mare Gas Light Company, was considerably over-subscribed at prices ranging from £105 per £100 down to the minimum of par.

Fine for Temporary Failure of Pressure.—On Wednesday, March 12, the South Suburban Gas Company were fined £5 with £5 5s. costs at the Greenwich Police Court for supplying gas at less than the minimum permissible pressure on Nov. 16 last. We learn that on the occasion in question the attendant, when putting a gas booster to work about noon, accidentally shut off the supply. He immediately re-opened the valve, but the pressure momentarily dropped to zero on the chart of the Gas Examiner; hence the Court proceedings. Very little inconvenience was caused, though a number of cookers and fires near to the works went out and had to be relit.

London Juniors Visit Their President's Headquarters.

An Interesting Afternoon at Fulham.

It has now become a regular custom for the London and Southern District Junior Gas Association to pay an annual visit to their President's headquarters, and a most interesting time was spent at the Fulham Stove Works of the Gas Light and Coke Company, Harwood Terrace, Fulham, on Wednesday, March 12, where their President, Mr. F. S. Larkin, is the Manager. The Juniors were welcomed at the works by the President and conducted round in parties. There was a most satisfactory attendance of members.

DESCRIPTION OF THE WORKS.

These works were erected at Harwood Terrace in 1895 as a combined stove repairing and meter testing depôt. The continual increase in the Company's business had made it necessary from time to time to extend the work original premises, but by 1922 it was not possible to carry on the work satisfactorily with further extensions, and a complete reconstruction was decided upon.

The new buildings, constructed in reinforced concrete, are so arranged that all apparatus received for renovation traverses the series of repair shops in a definite cycle until they are ready for re-issue. As a result of the increase in the amount of meter testing carried out at this depôt and at the Company's other stove and meter works at Haggerston, it was recently decided to concentrate the whole of the Company's meter work in a new and larger depôt at Pound Lane, Willesden. The transfer of this work from Fulham has released certain shops for repairing stoves and geysers, and these shops are now being adapted accordingly.

The progress of the works is shown by the following figures:

1921. The number of pieces of apparatus repaired, 13,596.

1929. The number of pieces of apparatus repaired, 63,417.

Stripping Room.—Cookers drawn from the reception stores are taken to the stripping room adjoining, and the brass work and the wooden handles are here removed and cleaned by boiling in a solution of soap and soda.

Muffles.—The cookers then pass on to the muffles. There are two muffles with travelling platforms, each capable of taking eight ordinary or sixteen "slot" cookers at one time. As one platform is pushed out another follows in, and the loss of heat is reduced to a minimum. The cookers are subjected to a temperature of 700° Fahr., rising to 900° Fahr. for 45 minutes, at the end of which time all fat, &c., is burned off.

Sand Blast Plant.—As soon as the cookers are cool they are brought to the sand blast plant, placed in a cabinet on a revolving table and cleaned by means of a jet of sand. The sand blast plant was made by Messrs. J. W. Jackson & Co., Ltd., of Manchester, and has at present a normal capacity of about 200 cookers a day. There are six cabinets, and two more will be put in this year. An 85-H.P. "National" gas engine drives Alley & McLellan compressors, in duplicate, delivering air at 25 and 30 lbs. pressure per sq. in.

Stove Shop.—This is capable of accommodating 180 stove fitters. Power for driving the grinding and polishing machinery is derived from a 75-H.P. "National" gas engine. Each packed cooker is completely renovated by one fitter, and before leaving the bench it is tested and passed by a stove prover. "Slot" cookers, however, are mainly repaired on semi-process lines by the boys referred to below. The shop is lighted entirely by Messrs. Sugg & Co., Ltd.'s fittings, which are operated in sections by distant control from the foreman's office.

Japanning Shop.—On completion of the renovation, the cookers are passed on to the japanning shop, where the majority are spray painted. After painting they traverse a heated muffle, where they remain at a temperature of about 250° Fahr. for half-an-hour, which has the effect of removing the greater part of the objectionable smell otherwise noticed on first lighting up a newly painted cooker.

New and Renovated Stove Stores.—After painting, the completed cookers pass into the new and renovated stores for issue. In these stores also the renovated fires are received, fuelled, and wrapped ready for re-issue. The stores have capacity for about 5000 cookers and 10,000 fires.

Gas Fire Repair.—Gas fires after being sand blasted are mainly cleaned and adjusted by boys.

Geyser Repair Shop.—Only minor repairs of geysers—about 50 per week—at present can be undertaken.

Sample Room.—In the past it has been found very necessary to take samples of all material received in order to ensure that makers do not change their patterns without permission from the Company. When it is decided to change the pattern of any particular item, such as a cock, four samples are taken, and, after careful examination for interchangeability, each is badged. One is kept, one sent to each of the Company's other two depôts, and the fourth returned to the maker as his badged sample. If any article in a subsequent delivery varies from the agreed sample, that article is rejected. An interesting collection of old appliances is also kept which is very useful at times for reference.

Gas Fitter Training Scheme.—With a view to ensuring a good supply of trained maintenance fitters for the Company's Gas Sales Department, a training scheme has been introduced under which boys are accepted from time to time at the Fulham Stove Works. They are not indentured apprentices, but can leave or be discharged at any time. The training is both practical and theoretical, and is so arranged that both branches run parallel.

During the period of practical training in repair work of all kinds the boys attend classes at the L.C.C. Continuation School, and at the Westminster Technical Institute, where they learn English, mathematics, and technical drawing, and later, gasfitting and gas supply. The class fees and certain travelling expenses are paid by the Company provided that the boys maintain a good standard of attendance at the classes. The whole course lasts five years, and at the age of 20 the boys are transferred to the Gas Sales Department to be sent on to the district as fitter's mates.

At the conclusion of the tour of inspection, the Association were entertained at tea in the Fulham Gas-Works canteen at the kind invitation of the Governor and Directors of the Gas Light and Coke Company—the President, Mr. F. S. LARKIN, presiding.

Thereafter,

The PRESIDENT apologized for the absence of the Chief Engineer of the Company, Mr. T. Hardie, who was, unfortunately, unable to be present. Mr. Stewart, however, was there to represent him, and he would ask him to speak to them.

Mr. E. G. STEWART, who is on the Chief Engineer's staff at Westminster, and also a member of the Association, said it had always been Mr. Hardie's intention to support Mr. Larkin on what might be called "his day." He would like to welcome the Association on behalf of the Chief Engineer and the Gas Light and Coke Company, and to express the hope that the afternoon they had spent at the Fulham Stove Works had been worth while. Mr. Larkin had been at Harwood Terrace now for 21 years; he came there shortly before he himself had come to Fulham. Harwood Terrace, continued Mr. Stewart, had not always been so large as it was now. The greater portion of the works they had seen that day had only been in operation some three years, having been commenced some five years ago. The stove repairing shops, he considered, were the most up-to-date to be found anywhere in the country. The type of shop was instituted by Ford in his motor works, where the work travelled round in sequence, and conveyors were used. That kind of shop, however, usually entailed the handling of not more than a dozen varieties of material. The total number of different kinds of appliances handled in these works was nearly 700 varieties. Therefore, that type of continuous shop he had referred to was not possible in a case like this. The Company's service to their consumers meant that they had to have this number of appliances. So they had done the best they could in order to make a proper and modern department for repairing cookers. The shops were put up by the Chief Engineer's Department, with the exception of the actual design of the buildings, which was mainly due to the contractors and the Company's Architect, Mr. Walter Tapper. The design, layout, and methods were entirely due to their President. It represented many years in the work of repairing appliances; Mr. Larkin had devoted a great portion of his life to the betterment of gas appliances.

The PRESIDENT, in reply, said he would like to ask Mr. Stewart to convey to the Chief Engineer his keen appreciation of the kind words said on his behalf. It was quite true that the planning of the works was evolved at Harwood Terrace, in view of their previous experience and what they anticipated that the requirements would be in the course of the next ten years. Unfortunately—or rather, perhaps, fortunately—the Gas Light and Coke Company grew by such leaps and bounds that no sooner had they completed one extension than they found the necessity for another. The scheme for training the youngsters was working very well also, and they hoped in the future to see beneficial results from it.

Mr. A. TENNANT (the Secretary of the Association), in proposing a very hearty vote of thanks to the Gas Light and Coke Company for the facilities they had granted for this visit, said he wanted to refer particularly to his colleague, Mr. Larkin, on this occasion. It had been a pleasure to work with Mr. Larkin during his year of office. It gave him great pleasure to propose the vote, with which he would like to couple the names of Mr. Stewart and the Chief Engineer, and also the guides who had so ably conducted them round the works.

Mr. D. J. WINSLOW (Lea Bridge), in seconding the vote of thanks, said they were ideal works; and when one looked at a map and discovered the vast area of the Gas Light and Coke Company, one could understand why such stove shops were necessary. Though there were 180 men working in one shop, the organization was so good that it only required a foreman and a clerk to supervise them.

That entailed a great deal of organization work for which Mr. Larkin was directly responsible.

The PRESIDENT, in reply, expressed his appreciation of the vote of thanks; and said that he did not want them to go away with the idea that this depôt served the whole of London. There was another very large works at Haggerston which served the north-eastern area.

Mr. STEWART replied to the vote of thanks on behalf of the Governor and Directors of the Company.

Oil Films in Gasholder Tanks.

By LIONEL G. COLLINS, of Messrs. Alexander Duckham & Co., Ltd.

[From an Address before the Gas Managers' Association of New South Wales.]

The use of an oil film in the gas industry is a matter upon which my London principals, Messrs. Alexander Duckham & Co., Ltd., have been engaged for many years. In their researches they have had the assistance of one of their Directors, Sir Arthur Duckham. After carefully exploiting this avenue of the industry, they have succeeded in presenting ideas which have proved, and are proving, successful against methods previously tried for the prevention of troubles which are bugbears to the industry. I would state that their achievement is, in a measure, due to the excellent assistance given in this direction in the early and pioneering stages by Mr. E. F. Keable, of the Gorleston and Southtown Gas Company.

Prompted by the adverse conditions through which the gas industry was passing, gas engineers directed their attention towards the exercise of every economy, and particularly to one of the chief causes of loss, corrosion, attended by one of its sources of origin, absorption of moisture by the gas in the holder. Although paint and patent anti-corrosives have been used, the results obtained have not been satisfactory, added to which is the expense of application.

In turning towards oil filming as a solution to these troubles, the results secured have certainly been remarkable. In Great Britain to-day ninety odd gas-works are using oil filming. In addition, numerous plants in the Dominions and foreign countries have adopted it. One remarkable result, which I feel I should mention, was obtained by Mr. Keable, who, in an article published in the "GAS JOURNAL" for Dec. 30, 1925, states that after two-and-a-half years of oil filming, leakages in his Company's gasholders were negligible, and "this happy state is almost entirely due to the oil treatment."

As you are aware, moisture is the chief abettor of the process of corrosion, and, to safeguard plants against its attacks, some element of resistance is necessary. As oil is recognized as having the greatest power of resistance to moisture, this hydrocarbon has been employed. Methods have been adopted for the elimination of moisture in the manufactured gas by subjecting it to drying after its manufacture. Should you subject your gas to this process, it is even more important to use an oil film.

Oil filming, as the phrase denotes, is the placing of a film of oil on the water in the holders. In the ascent and descent of the cups or holders the film automatically applies a coating of oil to the plates. This method of application ensures a constant coating, thus setting up a shield against any corrosive action. In connection with re-absorption, the presence of the film on the water restrains contact between the gas and the water, but at the same time does not prevent the deposit of any moisture from the gas. Thus, the average moisture content of the gas leaving the holders would be further from saturation point.

The selection of a suitable oil for the purpose is an important matter, and one which has received the closest attention of my principals. In their researches they have discovered that several essential features must be recognized:

(1) Freedom from sulphur and inorganic acids.
(2) A relatively low freezing point.
(3) Sufficiently high vaporizing point to obviate evaporation.
(4) Sufficient adherent properties to ensure the film remaining continuous when exposed to the weather or submerged in the tank for extended periods.
(5) Freedom from the liability to oxidation, which would result in the oil becoming gummy and laden with sludge.
(6) Ability to separate rapidly when mixed with water.
(7) Freedom from any solvent action on existing paintwork.

In regard to the presence of sulphur and inorganic acids, it is obvious that in the endeavours made to relieve gas of its deleterious matter the use of an oil containing these elements could not tend towards successful results, inasmuch as they would add to the corrosive action.

An oil possessing a low freezing or congealing point, otherwise, in oil language, "cold test," is necessary. Although in this country you are not confronted with the extreme conditions of frost that are experienced in Great Britain, I realize that in certain districts low temperatures are often experienced in winter. This prompts me to relate the results of a test carried out by my principals for the purpose of ascertaining the advantages of oil filming under conditions of frost. The test was conducted upon the following lines. First, a gentle current of cold air was circulated over water in such a manner as not to agitate the water or impinge directly upon its surface. By means of thermometers situated in the air and the water, the air temperature was kept approximately constant and the rate of the cooling of the water observed. This showed that after an exposure of fifteen minutes the temperature of the water was reduced 48° Fahr. The test was then repeated under the same conditions, the air temperature being, if anything, a little lower. In the second test a film of oil approximately $\frac{1}{16}$ in. was introduced, and in spite of the lower air temperature, the cooling was four times slower. For example, after sixty minutes' exposure, the water temperature was reduced 47° Fahr. This test clearly indicates that the presence of the oil film reduces the likelihood of water becoming frozen. Hence it is necessary that the oil used should have a comparatively low freezing point. The need for the oil to have a high vaporizing point is to avoid loss through evaporation, particularly during the summer months.

The adherent properties of an oil—its "body" or "viscosity"—are important. In the early stages of oil filming, kerosene was utilized, and, although to a degree satisfactory, it was realized that its low viscosity prevented adherence to the plates. The second principal objection to this oil was its low vaporizing point.

Liability of an oil oxidizing is a serious matter in connection with filming, inasmuch as the depreciation of the oil through this cause creates a sludge which may wholly or partly destroy the film. It also has the effect of making the oil gummy, which is rather an objectionable feature. The presence of sludge interferes with the rapidity of separation of the oil from the water; in other words, the presence of sludge would create an emulsion. This action would also take place in the case of the use of a non-neutral oil.

The tendency of an oil to exert a solvent effect upon existing paint work would be attributable to faulty refining. This explanation is emphasized by the fact that in many instances the refining of oil is accomplished by chemical treatment. If such chemicals are not entirely removed, they not only assist a combination between oil and water, but in time have an injurious effect upon any metal with which they come in contact. Instead of proving non-corrosive, it would have the opposite effect.

In the selection of the oils recommended by Messrs. Alexander Duckham & Co., Ltd., the pioneers of oil filming, they have exhibited every care and scientific precision to ensure offering oils that fulfil these requirements.

For internal filming, the initial application should produce a film of $\frac{1}{4}$ in. thickness on the water surface, this means one gallon of oil to cover 8 sq. ft. The quantity required for replenishment is approximately 2 p.ct. of the original quantity, added every twelve months. These figures have been taken as an all-round average, based upon actual experience.

For external filming, the quantity required is a film of not less than $\frac{1}{8}$ in. on the water. A safe estimate is that one gallon of oil is required for every 25 sq. yards of plate to be covered.

In cases where the cups of the upper lifts do not automatically pick up the oil on rising, they must be separately oiled, and provision made by a syphon for discharging rain water if it displaces the oil and causes an overflow. External filming is a safeguard against corrosion and the effect of atmospheric conditions.

In certain works it has been found advisable to take precaution against the oil drifting to one side of the tank, actuated by wind. The precaution adopted is a very simple one. To the side of the tank is affixed by bolts or clamps a series of cross battens. These battens are fitted at reasonable distances. The vertical faces of the battens are grooved, in which grooves is fastened a layer of thick felt or some other suitable material. The sides of the battens are concaved, which resists the drift. The action of these battens confines the oil within bounds, and the presence of the felt forms a joint between the tank and the holder, allowing the holder to rise and fall, but preventing any oil passing.

Once oil filming is introduced, painting costs are eliminated. I would mention that, where any corrosive action has already been set up, the presence of the oil will arrest it, and that oil filming is a more economical means of maintaining holders than any other existing method.

Register of Patents.

Coke Cars.—No. 303,376.

OTTO, C., & CO. G.M.B.H., of Bochum.

No. 38,506; Dec. 31, 1928. Convention date, Dec. 29, 1927.

Trucks for use in quenching coke are known, states the patentee, wherein the coke is supported on a platform movable for the purpose of discharge about a horizontal pivot and comprising two rigidly connected portions one of which, in the position for receiving coke, is horizontal, while the other is upwardly inclined at an angle below the angle of repose of the coke and engages below the inclined ramp forming an extension of the coke stage. In receiving the coke the horizontal platform serves for breaking the coke so that the pieces of coke do not strike the rear discharge door with violence. For discharging the coke the platform has to be so far turned about its pivot that the originally horizontal portion stands at an angle below the angle of repose of the coke. This gives rise to the disadvantage that the originally inclined portion of the platform is inclined far above the angle of repose of the coke, whereby the latter slides with high acceleration from this part of the platform and the whole mass of coke is set into rapid movement; the result of this is that the coke sliding down the inclined ramp strikes with considerable force against the closing rake of the inclined ramp, and an undesirable comminution of the coke occurs.

The object of the present invention is to avoid this disadvantage. For this purpose the part of the platform which during the reception of the coke is inclined below the angle of repose of the coke is fixed, and the horizontal portion is adapted to be turned on a pivot, so that it may be inclined to constitute an extension of the fixed portion of the platform. Thus there is no surface inclined in angle greater than the angle of repose of the coke, so that the latter slides only gradually, and spreads itself in a uniform layer on the inclined ramp without too much piling up against the closing rake. There is the further advantage that only a part of the platform need be pivoted, whereby there is an essentially smaller consumption of power.

Gas Cookers.—No. 324,819.

BROWN, J., of Falkirk.

No. 3974; Feb. 6, 1929.

An oven constructed in accordance with the invention is illustrated in the accompanying drawings, of which fig. 1 is an elevation looking on the rear side of the oven, and fig. 2 a section on the line 2—2 of fig. 1.

The gas cooking oven shown is formed with exhaust ports as 1 in its upper wall 2 which communicate with a space 3 between the wall 2 and the outer casing 4. The space 3 is in communication with a downcomer pipe 5 having an outlet which is shiftable vertically so as, in effect, to control the gaseous flow through the downcomer pipe. The downcomer pipe 5 is closed by a wall 7 at its lower end, and is provided with a longitudinal slot 8 accommodating the outlet neck 9 of an outlet branch 10 accommodated within the downcomer pipe 5 and closing the slot 8. The branch 10 is slidable vertically within the pipe 5 so as to vary the level of the neck 9.

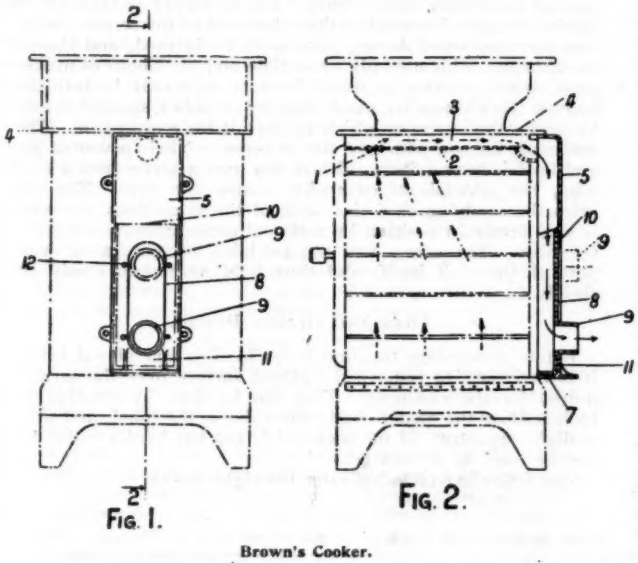


FIG. 1. FIG. 2.

Brown's Cooker.

The closed lower end of the downcomer pipe is constituted as a well indicated at 11 for condensate accumulating in the downcomer pipe 5. Before the pipe becomes heated (it being understood that the condensate evaporates when the well is heated), the outlet from the downcomer pipe may be so positioned as to produce a substantially even heat throughout the oven, without liability to extinguish the gas flames. Set-screws 12 are threaded through the pipe 5 and are engageable with the branch 10 whereby the latter may be locked in any predetermined position.

Gas Meters.—No. 324,256.

WILSON, J. H., and POOLE, D. C. E., both of Coventry.

No. 4633; Feb. 12, 1929. No. 10,122; April 2, 1929.

This invention relates to dry gas meters of the conventional type in which the admission and exhaust of the gas to and from the measuring chambers is controlled by a pair of valves of watt type moving over valve grids or ports and operated by the usual diaphragms or bellows. With meters of the type referred to, state the patentees, the volume of gas registered thereby in unit time—that is to say, the capacity of the meter per hour—is in each case determined by the area of the admission and exhaust ports, which, in turn, is limited by the maximum stroke it is possible to give to the valves. As these meters are at present constructed the stroke of the existing valves cannot appreciably be increased for want of room.

The object of the present invention is to provide practical construction whereby the capacity of meters of the type referred to can be materially increased without involving a proportionate increase in the over-all dimensions of the meter such as would be necessary if the existing pair of valves and parts were merely made larger.

The capacity is increased by using four, six, or more valves and grids arranged about, and operated from, a common crank-shaft. The valves can either be arranged to work together in diametrically opposite pairs, in which case they can all be worked from a single-throw crank, or, alternatively, they may be arranged to work together in parallel series—that is to say, the measuring chambers at each side of the central partition can be served by all the valves on the same side as the crank-shaft—in which case a multiple throw crank would be necessary.

Water Gas Production.—No. 324,867.

POWER-GAS CORPORATION, LTD., and RAMBUSH, N. E., both of Stockton-on-Tees.

No. 12,549; April 23, 1929.

According to this invention, steam is superheated alternately or simultaneously inside and outside the tubes of a water gas generator tubular superheater. The steam superheated may be partly or entirely the steam employed in the process. That is to say, the waste heat may be used partly for superheating the steam employed in the process and partly for superheating steam obtained from another source, or it may be entirely used for superheating the process steam. A waste-heat boiler may be provided, and the waste-heat boiler steam may be kept separate from the process steam or may be employed in the process either during the up run or during the down run, or during both. According to a further feature of the invention, the superheater tubes are first heated by the blow gases, with or without the introduction of secondary air; steam is then superheated by passing internally through the tubes during the up run, and then, when the up run is ended, steam is passed round the outside of the tubes, as well as inside them, preferably until the end of the down run. Steam may be sent through the tubes during the blow period, though, of course, such steam is not employed in the generator to which the superheater is attached. It may, however, be used in another generator. The steam, preferably from the waste-heat boiler, may be passed continuously through some of the tubes. The waste-heat boiler steam may also pass through the whole of the tubes when these are not occupied by process steam.

Applications for Patents.

[Extracted from the "Official Journal" for March 5.]

Nos. 5990—6872.

BARRATT, W. A.—"Hydraulic seals of carburetted water gas apparatus." No. 6242.

BLANCHFORD, R. F.—"Gas cookers." No. 6387.

BRITISH CARBONISED FUELS, LTD.—"Means for heating and setting retorts." No. 6466.

BURTON, M. G.—"Lighting gas burners." No. 6329.

DAVIES, A. E.—See Burton, M. G. No. 6329.

GUHL, H.—"Bunsen burners." No. 6115.

GUHL, H.—"Gas burners." No. 6313.

HIRD, H. P.—See British Carbonised Fuels, Ltd. No. 6466.

HUMPHREYS & GLASGOW, LTD.—"Cooling gas for removal of condensible vapours." No. 6054.

HUMPHREYS & GLASGOW, LTD.—"Hydraulic seals for carburetted water gas, &c., apparatus." No. 6242.

HUMPHREYS & GLASGOW, LTD.—"Manufacture of gas." No. 6244.

HUMPHREYS & GLASGOW, LTD.—"Purification of gas." No. 6552.

HUMPHRIES, H. E.—"Remote-control systems." No. 6541.

JOHNSON, J. Y.—"Apparatus for heating, drying, and low-temperature carbonization, &c." No. 6696.

KOPPERS AKT.-GES., H.—"Doors for coke ovens, &c." No. 6831.

MIDLAND BRASS FITTINGS COMPANY.—"Cocks for gas." No. 6608.

MORRIS, G. R.—See Midland Brass Fittings Company. No. 6608.

PARKINSON STOVE COMPANY, LTD.—"Taps or cocks." No. 6656.

RAYBOULD, A. (RAYBOULD, LTD.).—"Remote control for gas taps." No. 6186.

WELLS, J.—See Burton, M. G. No. 6329.

Propositions in Gasfitting.

By W. H. Evans, of Newport.

[From a Paper before the Wales and Monmouthshire Junior Gas Association, Feb. 15.]

In the Presidential Address given at the opening of the present session, a plea was made for full and frank discussion at our gatherings. To achieve this, it is necessary to read a paper that will provoke discussion, leading to an exchange of views on various matters, and the gaining of an extended knowledge of our work.

To-day, with the distinctly unfair competition the industry is called upon to face, everyone connected with it is bound to play his part by striving for increased efficiency. Those engaged in the gasfitting branch of our work must realize that a great responsibility rests upon them, as it is their duty to see that the installation in its final stage shall be completed free from all defects to give satisfaction to the user. To achieve this, the fitter must know his work thoroughly; if faults are latent—for instance, the coupling up of new work to existing pipes which are too small to carry the increased load—the fitter should be able to diagnose the difficulty and take steps to bring the matter to notice in the proper quarter. Again, he must be ready to explain to the consumer any special enlightenment needed in respect of new apparatus being installed, and also to answer questions which may be put. The confidence of the consumer may soon be won by proper deportment on the part of the fitter, and, contrariwise, incalculable harm, knowingly or unknowingly, may be perpetuated either by a seemingly offensive attitude, carelessness in expression, or ignorance. Every fitter should make it a special part of his work to explain and demonstrate new "gadgets" and appliances. In this connection, those serving on the district will realize how often it is found that burners are discovered to be out of adjustment as a result of household cleaning. It would appear particularly desirable to show consumers how to regulate burners correctly in order to secure the correct flame without consulting the gas undertaking, and thus save expense, inconvenience, and delay. At the same time, it should be borne in upon the consumer that gas apparatus properly installed will give every satisfaction, and that if, by any chance, he should not be obtaining the desired results, notification should be immediately given to the undertaking. It is the consumer who is not getting satisfaction and who will not give us a chance to put matters right whom we have to seek. In conversation with consumers, too, we must not fail to introduce maintenance schemes promoted by gas undertakings for the benefit of their consumers.

In attempting to summarize and explain modern gasfitting, we must realize that the conditions prevailing to-day are far different from those obtaining even (say) twenty years ago. Heavy traffic, with its consequent vibration, has increased out of all knowledge. Competition is much keener, and many changes are taking place in building construction. The materials used by builders are of great importance to us, as generally they act as the attachment for our supplies and fixtures. The materials chiefly used are stones, bricks, sand, and breeze blocks, and as we have to chase the walls for our pipes while the buildings are being constructed, it is very necessary to have some knowledge of their quality and crushing tests at different periods. Stones, when laid, form solid walls, and are substantial for any class of work. Bricks of three kinds are taken from the kiln. Those forming the top and sides of the "arches" in which the fire is built, "arch bricks," are hard, brittle, and weak. Bricks from the interior of the pile are called "body bricks;" they are of the best quality. Those bricks which have formed the exterior of the mass are underburnt. They are called soft, sammel, or pale bricks, and are used in inner walls and partitions of the smaller type of houses. Bricks of good quality bear a compressive force of about 3000 lbs. per sq. in. Soft or brittle bricks will yield at as low a force as one-eighth of that amount.

Sand blocks are made of a proportion of sand and cement, varying from three, four, and five of sand to one of cement, and their compressive force varies according to their proportion and age, as will be seen by the following tests:

Sand Blocks.

Proportion of		Age.	Crushing Stress in Lbs. per Sq. In.
Cement.	Sand.		
1	2	9 days	1·944
1	2	3 months	2·200
1	2	6 ,,	3·500

Breeze blocks are composed of four parts of coke breeze and one part of cement, their compressive force varying according to their age. Great care should be exercised when chasing and plugging walls while the building is under construction, especially in wet weather.

Before proceeding further I will explain the difference between a plug and a wedge. Many are of opinion that both are the same—just a piece of wood driven into the wall. This is wrong, and each should be used for its respective purpose. A plug is either square or oblong at either end, and is used in solid walls. A wedge is oblong and tapered, and is used in cavity walls.

The method of plugging a wall is to cut a hole which should be equal in size back to front, with a cold chisel. A plug is made to fit the hole, one or more hacks being made at the inner end according to the size of the plug. Small wedges are inserted in the hacks, and as the plug is driven home the wedge or wedges come in contact with the back of the hole and expand the inner end of the plug. Thus pressure is exerted on the plug—but at the inner end and not at the outer end or entrance, at the strongest point of the hole.

Wedging the Wall.

The planes of the wedge on either side should be chamfered, thus giving a twisting appearance to the wedge. This is very important, because, as the wedge is driven home, the necessary twist has a tendency not only to make it travel better, but gives a greater pull, as the stress on the wedge is transferred to the centre of the bricks. With the present heavy traffic and consequent vibration the tapered wedge will dislodge very quickly. Plugs and wedges should be longer than the hole, so that the over-riding portion can be sawn flush with the wall. It is most important that the block should rest on the plug or wedge. Often the wedge or plug, if it is short, is driven into the wall leaving a space between the end of the plug or wedge and the block. Two 1½-in. screws are screwed home; then you have a direct pull on the plug or wedge of about 2000 lbs. The fitter must fix the plugs and wedges in the proper manner, as any neglect in this respect leads to many evils.

The Rawlplug Method.

Undoubtedly the rawlplug is far superior to the plug and wedge method, for cleanliness, neatness, and quickness. With the rawlplug, work can be done without mess or damage. The labour saved is at least 60 p.ct., and the work can be carried out neatly and cleanly. The rawlplug is invisible, as the hole required is smaller than the head of the screw. When you turn the screw home, your work is finished, and there is no damage. This not only saves time and the labour of making good, but it creates goodwill for you, especially in furnished houses. Rawlplugs are small, tough fibre tubes, specially treated by a chemical process which renders them waterproof. They are made for use with any size of screw. Their power of grip and hold is tremendous. When you turn a screw into a rawlplug, the principle of expansion comes into play. The wall grips the rawlplug as a vice, and, at the same time, the screw is held firmly in position by a thread, automatically formed in the fibre. The screw and the rawlplug become, as it were, part of the wall itself, and thus hold absolutely firmly and rigidly.

Tiles and Glazed Bricks.

Before proceeding to jump holes in tiles and glazed bricks, it is necessary to remove the glazed surface over the area required for the rawlplug. This can be done by rotating the tool, holding the holder end in the palm of the hand, and using a slight pressure. If the material is not too hard a twist drill can be used to advantage.

The following table indicates the right sizes:

Rawlplug Nos.	3.	6.	8.	10.	12.	14.	16.
Twist drill, sizes—Inches	1/8	5/32	7/32	9/32	1/4	5/16	11/32

Rawplug Nos.	18.	20.	22.	24.	26.	28.	30.
Twist drill, sizes—Inches	13/32	7/16	15/32	1/2	17/32	9/16	1

It is very important that the tool, plug, and screw should be of the right sizes, which are set out below, together with the direct strain required to withdraw rawlplugs.

Size of Screws.	Rawlplugs.	Diameter Size of Rawlplug and Drill.	Direct Strain in Lbs. or Tons Required to Withdraw Plugs.
In.	No.	In.	
¼	3	¼	120 lbs.
⅜	6	3/8	250 ,,
⅜	8	3/8	280 ,,
1	10	7/16	520 ,,
1	12	½	570 ,,
1	14	9/16	650 ,,
1	16	5/8	750 ,,
1½	18	11/16	1500 ,,
1½	20	¾	2100 ,,
2	22	7/8	2700 ,,
2½	24	1	2 tons
2½	26	1¼	2½ ,,
2½	28	1½	2½ ,,
3½	30	1	3½ ,,

Another very useful tool is the rawlplug wall boring tool, designed to bore holes right through walls of any material for the insertion of piping. The tool is made in a range of diameters from 7/8 in. to 1¼ in., and it is the work of a few minutes to bore a clean hole of precisely the desired size without the hacking and mess of the laborious method of the cold chisel.

Carcassing of Buildings.

It must be remembered that neatness is a most important consideration when carcassing new buildings, or running additional supplies to dwellings that have already been piped. Pipes of any description are not usually pleasing to the eye, and it is therefore necessary to run them so that they will not be too conspicuous. When run along a joist, the pipe should be supported by battens, which will prevent its sagging and obviate the formation of dips. In chasing iron pipes in a wall consisting chiefly of breeze blocks, it is essential that they should be protected from the chemical action of the blocks. The groove should be made larger than the pipe diameter, and filled with a mixture of lime, putty, and sawdust, into which the pipe should be buried. This mixture is always easily obtainable when buildings are under construction. It is, of course, an order of the day that gas pipes should be absolutely clear of electric wiring; but even with every care on our part, the interposing water pipes frequently lead to fusion being set up, and I believe the day is not far distant when this matter will have to be put right. Water pipes are good conductors of electricity, and therefore should be given wide berth.

Fixing of Meters.

It is very necessary to avoid exposing gas meters to extreme temperatures, and for this and other reasons careful consideration should always be given to the position in which the meter is fixed; also, where prepayment meters are installed, attention should be given to easy accessibility for the insertion of coins. The smaller meters are connected to the service and internal supply by means of lead and compo pipes, which should always be full bore, and not smaller than the bore of the meter caps and linings. The pipe should be bent, and cut to its proper shape, before the unions are blown on. There should be no weight or strain whatever on the connections or the meter. By this method the connections can be screwed up easily, and not forced into position as is done when the cap and lining are first blown on to the pipes. The meter must be fixed perfectly level, and if fixed on stone, tiles, or concrete floors, should be placed to rest on meter blocks. With the increased traffic, I would suggest that—particularly with prepayment meters, with their heavy load of coppers—it would be an advantage to the life and working of the meter if four rubber studs were placed on its base to act as shock absorbers.

Cooking Stoves.

Cookers should be fixed perfectly level, and among the most important factors, to my mind, are to explain fully to the consumer how to remove and replace movable parts for cleaning purposes, and the regulating of burners so as to attain the correct flame. There is still a controversy about the cooker flue, and I will give my personal experiences for what they are worth. I well remember having to fix three cookers with flues for a cooking demonstration by a lady well-known to the gas industry. The flues had to be fixed in such a way that no marks would be left on the walls when the demonstration was over—an instance of fixing flues to nothing! The lady arrived, and her first request was to remove the flues. This was rather annoying, because I had overcome the seemingly impossible task, and therefore I asked for her reason. "Well," she said, "if you want a flue for the oven, why don't you have a flue for the top?" Since then I have been very interested in the cooker flue. If a cooker is fixed in an enclosed space, to my mind, the ideal thing is a canopy. In my own home, I have paid special attention to our cooker one day a week, while the whole of the cooker is in use. The size of the scullery is 5 ft. 6 in. by 4 ft. 8 in. by 7 ft. 6 in. There is also a coal-fired wash-boiler measuring 2 ft. 4 in. by 2 ft. 4 in. by 2 ft. 6 in., leaving a space of 179 c.ft. The cooker is kept clean and regulated properly. The gas undertaking supplies and fixes flues free, but we have no reason whatever for having a flue fixed.

The two causes leading to trouble from so-called "fumes" are chiefly (*a*) bad regulation and (*b*) dirty condition of the cooker. The electrical people have made capital out of so-called fumes, but are suffering with the same complaint themselves. It is obvious that, where grease is left to accumulate for weeks, and is then exposed to heat, offensive odour is bound to result.

Hot Water Apparatus.

The gas industry is in the happy position of being able to offer the public—whether they have the coal boiler range already installed or not—means of heating water for domestic purposes which are second to none. The electrical people claim remarkable things for their apparatus, but, coming to hard facts, especially where the pocket is concerned, they seem to fade, for the equivalent of what you pay for gas as a heating agent will cost far more with electricity.

I have no doubt that there is a vast field for the gas industry in this direction, as our varied appliances are most adaptable to connect to the existing installation, either to work with the existing apparatus or to give full service. It is important, however, to see that the existing installation is working properly before a gas circulator is connected thereto. The arrangement is often inefficient through the defective way the connections are made. In some cases the upper ends of the flow and return pipes are both flush with the bottom of the tank, with the result that when any hot water is drawn off it is at once diluted with the supply from the cold water tank, which then runs both into the flow and the return pipes, and prevents anything beyond tepid water being drawn off. A similar result is brought about if the branches to the bath and scullery are connected to the return pipe instead of to the flow pipe. Another common defect is the coupling of the flow and return pipes to the top of the boiler, so that circulation takes place spasmodically. The entrance of the flow pipe should be near the top of the boiler and that of the return pipe near the bottom. One of the great advantages of gas over other agents is the thermostatic valve control which shuts the gas off when the water has reached the predetermined temperature, and automatically opens the gasway when any hot water has been drawn off.

At Newport, the Gas Company supplies and fixes the whole geyser outfit complete, which will be more popular with the householders than if they had to deal with the Company only for (say) the gas supply and then with another firm for the remainder of the work. This method also leads to the apparatus being fixed to the best advantage. A contractor supplying the apparatus only will carry out the work to suit his own convenience. A flue must always be fixed to a geyser. It should be of the same size as the spigot end of the flue outlet at the top of the geyser, and should be carried to the nearest chimney, a live one preferably, or through the ceiling into the roof space (care should be taken to see that this is well-ventilated), through the external wall, or through the roof. A baffler must be fixed as near as possible to the ceiling in every case, except when the flue is run through the external wall. In this case, it should be fixed midway between the spigot outlet of the geyser and the bend leading out through the wall, so that the extra length of flue before the bends will assist to overcome the check caused by the two bends. A suitable terminal should of course be fixed. The Great Western Railway Company is very thorough in its methods, and no doubt they have fixed miles of flues in their various signal boxes, offices, and cabins. They always take their flues direct through the roof with a cowl on top, and will not tolerate bends. I believe that this is the most satisfactory way, and well worth the extra cost, because the flue is protected from the cold wind, especially if the bathroom has a northerly aspect.

It is also advisable to make a ventilating hole in the bathroom, either in the door or the wall, as near as possible to the floor. When making a hole through a cavity wall, the hole must be complete in itself; the cavity draught should not interfere with the ventilating hole. Salesmen and fitters should always keep their eyes on the chimneys where flues have to be fixed, as certain parts of our cities and towns are more affected by downdraughts than others, which is evident by the special pots to be observed on the chimney stacks. Special attention should be given to flues in these vicinities.

Gas for Lighting.

Insistent claims should be put forward for the advantages of gas over electricity for lighting. Gas does not injure eyesight; it promotes ventilation; it has greater penetrating power; it combats damp and cold; and as an artificial light is the nearest of all agents in its approach to daylight. Candle-

power for candle-power, gas is cheaper; it is absolutely under control; it can be dimmed at will without having to change the mantle, and its maintenance cost is far cheaper. It should particularly be remembered that with the introduction of "summertime," artificial lighting is almost exclusively used in those months of the year when damp and cold are most prevalent, and for this reason gas presents advantages which cannot be equalled by its competitor. The public, and some inside the industry too, must be made fully aware of these facts.

Gas Fires.

The extended adoption of gas for the modern heating of buildings of all kinds by various types and designs of appliances has undoubtedly taken the nation a step nearer to ideal conditions in the abolition of smoke-emitting chimneys. It is doubtful, however, whether gas as a heating agent has had its full due. Certainly it can be said with confidence that there is a vast field open before the modern gas fire with its high thermal efficiency, though here again local authorities owning the electrical supply are not disposed to give gas—the acknowledged rival of their own commodity—its place as the best heating agent in their housing estates. We in the gas industry must educate the public regarding these facts and secure to the tenants of council houses freedom to select the best, whether it be for lighting, heating, or cooking.

Discussion.

Mr. C. H. Collins (Swansea) said that Mr. Evans' paper showed signs of careful preparation. He would like to emphasize the importance of the gasfitter carrying out his work in a business-like manner as the gas undertaking was judged to a large extent by those who came in contact with consumers. He agreed that the majority of complaints regarding cooking stoves were due to these appliances being left in a dirty condition. Consumers should be induced to keep their cookers clean and thereby obviate the necessity of sending fitters to attend to the complaints received. Referring to the use of the rawlplugs, Mr. Collins said this method of fixing was very reliable, and in his own district they had adopted the use of these plugs with distinct success. In cases where accidents had been caused through electric wiring being in close proximity to lead pipes, he had found that sufficient care had not been taken by the electrical contractor in keeping away as far as possible from gas pipes in the house. With regard to hot water appliances, Mr. Collins said he considered there was a field of great possibility in this direction to which they should give attention. It was particularly advantageous in the summer period when the coal fire was not in use. He would like to ask the author if he was referring to the "tank system" when it was mentioned that branches to the bath and scullery should be connected to the flow pipe. With regard to the installation of geysers, he would say that it was always advisable for the gas undertaking to do the fixing, as he had found that where private plumbers had been given the work, subsequent complaints followed, and the gas company was called in to rectify the errors in fixing these appliances. Concluding, Mr. Collins said that gas lighting should not be lost sight of, and with the advent of the new Horstmann switch system, which enabled the gas to be lowered, a step in the right direction had been taken.

Mr. B. J. Bell (Cardiff) laid stress on the question of running pipes particularly in old houses, and the absolute necessity of keeping away from electric wiring, as most of the fires and trouble arose from this cause. He did not think that flues were necessary to a gas cooker. As would be seen, they were very conspicuous by their absence on the district. Referring to the built-in fires, there was a danger in cases where there was no space left behind the fire in the possibility of matter falling and stopping up the flue.

Mr. T. Lane (Cardiff) said that flueless stoves had been mentioned, and he would like to ask Mr. Evans if it was intended to include radiators. He did not exactly agree with the author that the installation of the inset fire was on the wane, though the justification for this might be owing to the high running cost of this particular type of fire.

Mr. J. Viney (Cardiff) pointed out that a big disadvantage in the use of rawlplugs was that the whole range or series had to be carried. He further remarked that he did not think it advisable to carry the flue of the geyser into the roof space, the much better way being to take it outside. No mention had been made of the gas wash-boiler, which was very popular in use on the district, and which considerably augmented the gas consumption.

Mr. T. Smith (Cardiff) referred to the carcassing of buildings and houses, and inquired as to whether the builder or the gas undertaking carried out the work of laying internal pipes in the author's district. He considered it would be a distinct advantage to get builders to provide a ¾-in. pipe run to the bathroom in readiness for a geyser.

Others who contributed to the discussion were Messrs. T. Walrond, L. Cox, R. Mills (Cardiff), H. D. Hazell, W. W. Beach, J. Hislop, R. M. Jones (Newport), and E. E. Moore (Swansea).

Mr. Evans, dealing with the points raised, said he attributed the trouble with electrical fusion to the contractors who employed young lads to carry out the work of wiring, and sufficient care was not exercised in this respect. He had purposely left out the gas switch, as it was not suitable for prepayment consumers. With regard to the flow pipe, he was referring to the tank system only. Referring to the question of carcassing, the author said that his Company obtained and carried out the work of piping houses, and in this way they could be assured of the right size pipes being laid.

Votes of Thanks.

A cordial vote of thanks to Mr. Evans was proposed by Mr. R. Mills (Cardiff), and seconded by Mr. E. E. Moore (Swansea).

Mr. Evans responded.

A vote of thanks to the Chairman and Directors of the Cardiff Gas Light and Coke Company for accommodation provided, proposed by Mr. C. S. Thane, and seconded by Mr. A. T. Crocker, terminated the proceedings.

Usage and Construction of the Dry Gas Meter.

By A. W. Sharman, Chief Chemist, Messrs. Thomas Glover & Co., Ltd.

[From an Address before the Scottish Junior Gas Association (Eastern District), March 8.]

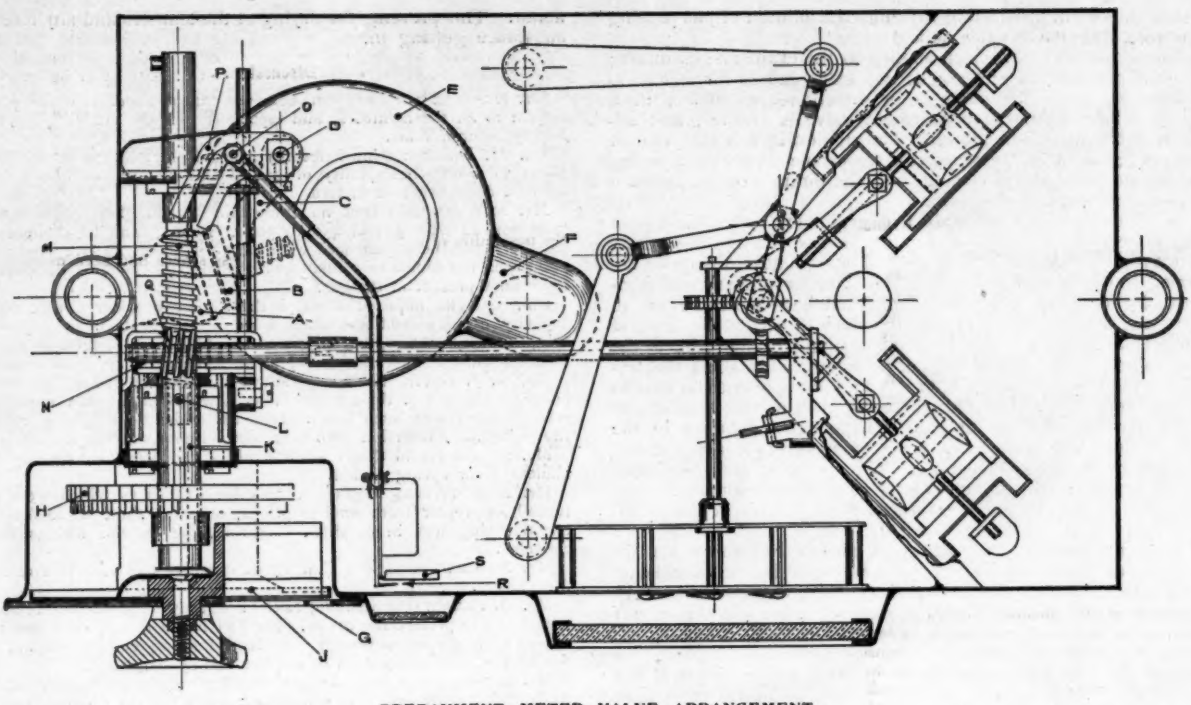
After a general introduction, Mr. Sharman explained the working of the Thomas Glover prepayment meter in the following terms:

The gas is led from the inlet pipe through a nozzle (A) with a white metal ground face. Closing on this face is a spring disc (B), covered by an oiled leather disc to give a gas-tight joint when brought against the elbow face. This disc is fixed to an arm (C) mounted rigidly on a spindle (D) which passes through a stuffing-box. This is all contained in a circular box (E) with an outlet (F) for the gas to pass on to the meter. This valve is opened by the coin being inserted through the slot in the price-changer (G) and engaging in an annular toothed wheel (H), being held meanwhile in a pocket (J). The outside teeth on this wheel are engaged by a ratchet pawl which allows it to move clockwise only. The pocket is fixed to a knob, and, on turning this, the coin revolves the toothed wheel, which, by means of a slotted sleeve (K) and pin (L), draws a screwed spindle (M) through a toothed wheel (N). Attached to the screwed spindle is a pin (O) moving in a slotted cam (P) on the valve spindle (D). This opens the valve (B), and it is closed by a worm (Q) turning the toothed wheel (N), and so drawing the screwed spindle (M) back to its original position. A pointer (R) is linked to the moving pin, to indicate on a dial (S) the amount of gas that has been paid for, of the amount that is left unused. To alter the amount of gas for the coin, the price-changer (G) is moved round to the hole required. This makes the coin travel either a greater or lesser distance before dropping into the coin box below, and so alters the travel of the coin wheel and consequently the spindle and the pin which closes the valve.

This sounds like a straightforward mechanical job, but it is in details that the manufacturers of meters find the difficulties that keep them continually experimenting. The thickness of pennies varies to the extent of 25 thousandths of an inch, and they must all fall out of the pocket after travelling the required distance. Pennies minted in 1912 have a peculiarity of their own. In the first place they are thicker than the average penny, and many cases have been investigated where they will work perfectly one way up, but, on reversing the coin, they hold up in the pocket. Then the valve must open quickly enough to give a good supply after three or four clicks, but must not shut off suddenly, and so run a risk of open taps being left on in the house. Only coins of the right value must work the mechanism, and all possible measures must be taken to prevent people with ingenious but dishonest turns of mind making an auxiliary source of income at the expense of the gas company.

Some fifteen different materials are used in the construction of a gas meter, and it is on the care and selection, and constant checking of quality, that the life of a meter depends. A good gas covers the internal parts of a meter, in time, with a film of clear oil, which assists the moving parts to run easily, and protects the metal from corrosion. Moisture, impurities in the natures of traces of sulphur compounds, ammonia, oxygen, excessive naphthalene deposits, all do considerable harm to the meter, which is not in evidence until the meter is opened, and a laboratory investigation carried through to determine the cause of its failure. To reduce the danger to a practical minimum, white metal and tin-coated iron are used as much as possible, tin being the most practical anti-corrosive metal for this purpose.

The diaphragm is cut from a Persian skin. This is really the skin of a sheep reared in India, and, originally, for some



PREPAYMENT METER VALVE ARRANGEMENT.

religious reason, the sheep was not allowed to get fat. This fact developed a light, tough, close-grained skin, which is admirably suited for the gas-tight diaphragm in a gas meter. They are semi-chrome tanned, and preserved by immersion in a special diaphragm oil, which gives them the necessary pliability, and still resists any stripping action the gas may have. It will be noticed that the leather is not in contact with the rim or tightening band. This is done to prevent the metal band cutting the leather, or the leather starting chemical action on the metal band.

During the past ten years it will be admitted by everybody that the gas industry has made enormous progress. Necessity being the mother of invention, it follows quite naturally that the gas meter has had also to progress, and this has been in the way of increased capacity in the same sized cases.

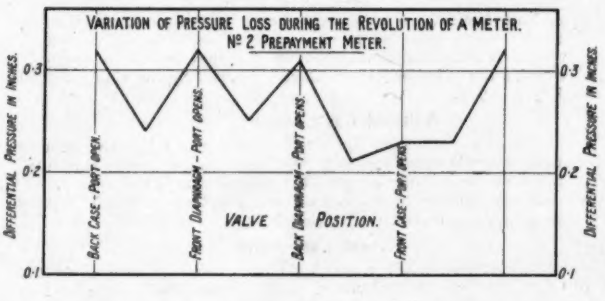
Introduction of Standard Meter.

The capacity of a gas meter depends primarily on the size and movement of its diaphragms, and the number of revolutions it makes per hour. Though there are many thousands still in use, we are slowly leaving behind the old method of judging meters by the number of lights they were reputed to supply. A light was eventually reckoned to consume 6 c.ft. of gas per hour; and so a 3-light meter was fitted where a nominal consumption of 18 c.ft. an hour was anticipated, a 5-light for 30 c.ft., and so on. Many of these meters were, and still more are now, considerably overloaded—in fact, it was generally recognized by manufacturers and gas companies alike, that a meter would work well and register correctly up to 50 p.ct. increase on its badged hourly capacity. The usefulness of gas increased, and the consumption per consumer increased accordingly, and brought about the introduction of what we know as the standard meter. These are made to deliver nearly twice the amount of gas from the same size of case used for the "lights" meters. This is done by enlarging the diaphragms, and lengthening the stroke, making the gas passed per revolution 0·166 c.ft. instead of 0·125 c.ft. in the 3-light case, and calling the new capacity meter a No. 2. The 5-light capacity per revolution was increased from 0·166 to 0·25 to make the No. 3 standard, and so on all through the sizes.

With the gradually increasing use of gas fires and geysers came the overloading on these meters, and manufacturers were called upon still further to increase the capacity of their meters, and so the high-capacity meter was designed, which again doubled the quantity of gas capable of being delivered from the same sized case. Having increased the size and stroke of the diaphragm to a practical limit, it was found necessary in some cases to make the meter work a little faster. This introduces a consideration to which gas companies are paying a good deal of attention at present—namely, loss of pressure across the meter.

Causes of Pressure Loss.

The pressure of gas available at the inlet pipe of a meter is decreased by a small amount at the outlet pipe. This loss of pressure is due to several causes, and manufacturers to-day are going to a considerable amount of trouble and research work to reduce the pressure lost to a practical minimum. One cause of this loss of pressure is due to friction. This includes the minute frictional losses caused by moving parts in the meter, changes of direction of the gas, and friction as it passes through the various chambers and channels to the valves. It will be obvious that ample room in the gas passages and valves will reduce this loss. Changes of direction should be as gradual as possible, and all bearings should work as freely as gas-tightness or actual play in them will allow. The next cause of pressure loss lies in the diaphragms. These must be sufficiently large to allow the required quantity of gas to enter and extend them in either direction without allowing the leather to become fully extended. The most important cause of pressure loss is attributable to the valves and their setting. As the meter goes through its cycle of movements, the four chambers are opened by the slide valves in turn to the outlet pipe of the meter. If, by bad setting or too much lap, any chamber is late in opening, then just for that time the supply of gas to the outlet pipe will be decreased, and the pressure will drop in consequence. As the valves operate, the differential gauge oscillates up and down in a constant cycle, the same loss of pressure being shown each time the valves reach any particular position. In the accompanying graph a line has been plotted to



show the changing pressure losses during the complete cycle of a meter. All meters do not show the same regularity of motion, this being altered by the slightest variation of the travel or lap of the valve cover. The highest points are just before the different chambers are connected with the outlet pipes, for the minute wait as the valve passes over its lap causes the shortage of gas mentioned before.

Bad setting causes great oscillation in this graph line, and is brought into evidence to the consumer by a variation in light from an incandescent burner. It is as well to remember that the faster a meter works, the greater will be the amount of pressure lost across it. The oscillation will not be any greater; in most meters it diminishes. The pressure at which the gas is supplied does not affect the loss. A meter losing 5-tenths out of an inlet pressure of 3 in. will also lose 5-tenths if the inlet

pressure is 6 in., provided always that the amount of gas passing through the meter is the same.

These remarks have been applied to the ordinary gas meter; but the prepayment meter adds two extra causes for lost pressure—viz., the extra changes of direction combined with a small orifice when the prepayment valve is closing, and additional bearings to be moved. The small orifice is the greatest offender; but it is necessary to give people plenty of warning when the valve starts closing, and the diminution of pressure is the sign for a further coin.

We have heard a great deal of argument and criticism on the subject of pressure lost through meters, discounting generally the fact that the official test allows 5-tenths difference between the inlet and the outlet. Most meter makers can comfortably keep well inside this limit, and have worked more to keep the average down to 3-tenths than to accept the limit of the official test. When considering a supply of 3 or 4 in. to the inlet pipe, a loss of 3-tenths will not appreciably affect the service in the house. In this light it would not appear to be wise to adopt the policy of loose bearings, stuffing in the glands, and light diaphragm skins to gain a little extra pressure in the outlet pipe, when the extra tenth of an inch or less will not materially help the consumer. The arduous and consistent work expected of a dry gas meter calls for sturdiness in construction which should not be sacrificed to gain a small advantage.

In conclusion, I must add that meters call for a certain amount of consideration. A dry gas meter is not as delicate as a watch, but it is far more delicate than a stove or fire. An iron casting that is dropped will show no uncertain evidence if damage has been done; but a meter will certainly be damaged, though perhaps no obvious evidence will show. There are nicely adjusted bearings and soft metal guides which will not stand any rough treatment. It will also be useful to stopper off the inlet and outlet pipes whenever the meter is standing about. This prevents the drying of the leathers and any foreign substance getting in.

Discussion.

Mr. J. Scobie (the President) observed that the address would prove helpful to all the members, and especially to those studying for Gas Supply examinations.

Mr. M. Darling (Cowdenbeath) asked if Mr. Sharman was prepared to state what quality of gas should be used to obviate the internal destruction of meters.

Mr. Sharman said that no extraordinary run of complaints had been noticed with gas of 450 to 500 B.Th.U.; and he thought no trouble should be experienced with gas over 300 B.Th.U. The main point was the moisture content, which held the chemical compounds sometimes present in the gas.

Col. Glover inquired whether the author considered that high-capacity meters should be worked above the rate of the badge capacity. High-capacity meters, he suggested, could not be judged as safely as the standard meter, which experience had proved to be successful.

Mr. R. J. Gavin (Kirkcaldy) stated that he had heard consumers advocate the use of thick pennies, as it was thought that more gas was obtained with such coins. Had the difficulty of getting rid of the penny after insertion been overcome without shaking the meter?

Mr. Sharman said that these difficulties had been overcome by the blade type or spring pocket.

Mr. Main (Works Manager), speaking of meters which were returned for repair from seaside places, observed that, while the external casing was in excellent condition, the interior fittings were corroded.

Mr. Sharman remarked that small quantities of chlorides caused the trouble.

Mr. D. Garrie (Burntisland) asked if drying the gas before sending it out would protect the meter. He had found in one case that the analysis of the condensation contained tanning compounds out of the leather, also compounds of sulphur and cyanogen.

Mr. Sharman said that dry gas would prove an advantage, but he thought it a little unfair to condemn a meter for not resisting hydrocyanic compounds.

Gas Acts (1920 and 1929) Orders.

SPECIAL ORDERS.

Plymouth and Stonehouse Gas Light and Coke Company.

To extend the limits of supply, to authorize the Company to make higher charges in the added area than in other parts of their district, to empower them to use scheduled lands for gas purposes, and to make provision for the raising of further capital.

Tottenham and District Gas Company.

To authorize the use of scheduled land for gas purposes, to enable the Company to purchase additional lands, and for other purposes.

Uxbridge, Maidenhead, Wycombe, and District Gas Company.

To authorize the Company to raise additional capital, and to make further provisions with reference to the Company's affairs.

SECTION 5.

Croston Urban District Council.

To empower the Council to supply gas to bordering premises mentioned in the schedule, as if these premises were within the boundaries of the district.

SECTION 6.

Barry Urban District Council.

The Council shall, from April 1, charge according to the number of British thermal units supplied, and shall on or before March 15 give notice of the calorific value of the gas they intend to supply.

The maximum price in respect of gas supplied by the Council shall be 10d. per therm.

Halstead Gas Company, Ltd.

The Company shall, from April 1, charge according to the number of British thermal units supplied, and shall on or before March 15 give notice of the calorific value of the gas they intend to supply.

The standard price in respect of gas supplied by the Company shall be 14·4d. per therm.

Kendal Corporation.

The Corporation shall, from April 1, charge according to the number of British thermal units supplied, and shall on or before March 15 give notice of the calorific value of the gas they intend to supply.

The price of 1s. per therm shall be substituted for 5s. per 1000 c.ft., and so on, in the Kendal Gas Order, 1930.

Rawmarsh Urban District Council.

The Council are to supply gas on the therm basis as from April 1. In the Council's Order of 1930, 10·8d. per therm is to be substituted for 4s. 6d. per 1000 c.ft. and 11·4d. for 4s. 9d.

DECLARATIONS OF CALORIFIC VALUE.

Burley-in-Wharfedale Urban District Council.—500 B.Th.U. (April 1.)
Chorley Corporation.—430 B.Th.U. (April 1.)
Halstead Gas Company, Ltd.—450 B.Th.U. (April 1.)
Kendal Corporation.—450 B.Th.U. (April 1.)
Mountain Ash Urban District Council.—470 B.Th.U. (July 1.)

Parliamentary Intelligence.

[From Our Special Correspondents.]

House of Lords.

Special Orders.

The Grange and Cartmel Gas Order, having been passed by the Special Orders Committee, has now been approved by the House.

Private Bills.

The South Staffordshire Mond Gas Bill, having been passed by the House of Commons, has been read a first time and referred to the Examiners.

House of Commons.

Special Orders.

Plans have been deposited in connection with the East Hull Gas Order, the Bath Gas Order, and the Watford and St. Albans Gas Order.

Private Bills.

The petition of the Brentwood Gas Company against the London and North-Eastern Railway Bill has been withdrawn.

Coal Mines Bill.

An amendment for the deletion of the price-fixing clause in the Coal Mines Bill is being moved on Thursday by Sir Ernest Shepperson, Sir Philip Cunliffe-Lister, Mr. Ernest Brown, and Mr. Kingsley Griffith. The Conjoint Conference of Public Utility Associations, representing gas, water, and electricity undertakings, is asking Members of Parliament to support the amendment.

Gas in Railway Trains.

Mr. Douglas Hacking asked the Lord Privy Seal whether, in view of the fact that there are still approximately 30,000 gas-lit coaches on British railway steam-worked coaching stock, representing about 50 p.ct. of the whole, he would consider the advisability, in the interests of employment and public safety, of making it a condition in connection with Government grants or loans to railway companies that they should convert this dangerous system to that of lighting by electricity.

Mr. Thomas said that the reply was a long one, involving figures, and he would circulate it in the Official Report, but his questioner would be pleased to know that good progress in that connection was being made.

[The following is an extract from the reply: The figure of 30,000 appears to relate to the number of gas-lit coaches at Nov. 1, 1928. Since that date, the Railway Companies have made further progress with the conversion of their gas-lit coaches in the normal course. Apart from the gradual conversion of their existing stock, the practice of the Railway Companies is to equip all new passenger stock with electric lighting equipment, with the exception of certain restaurant cars, in which gas is utilized.]

Radiation Limited.

Ordinary General Meeting.—The Chairman's Speech.

At the Annual Meeting of the Company, held at the Cannon Street Hotel, London, on March 17, 1930, the CHAIRMAN (Mr. H. James Yates), in moving the adoption of the report and accounts, said:

It is with much pleasure that I meet you once again in the gratifying position of being able to report to you the continued development and prosperity of your business, and that as a consequence of increased turnover our profits for 1929 show an increase on the previous year, which, I think you will agree, is a matter for congratulation considering the many difficulties which most manufacturing concerns had to face during 1929. Foolish competition continues, and it has so seriously affected certain sections of your business that to enable us to hold our markets we have been compelled to supply certain of our goods at prime cost, or even at a lower figure.

I now draw your attention to the audited accounts for the past year, which have been accompanied by a statement showing, for your further information, the combined assets and liabilities of the Constituent Companies as at the date of the parent Company's balance-sheet.

On a comparison of the balance-sheet and profit and loss account of Radiation Limited with those of the previous year, you will notice the increased amount of net income of £294,779 appearing in the profit and loss account, which compares with £277,924 last year.

I will now deal with the statement of combined assets and liabilities of the Constituent Companies. These assets, *less* liabilities, amount to £3,626,033, and that is the sum appearing on the assets side of the balance-sheet of Radiation Limited as representing investments in and amounts owing by Subsidiary Companies. Again on the liabilities side of the combined statement—the amounts owing on debentures in the Constituent Companies have been further reduced from £53,450 to £51,650 by purchase of debentures during the year.

The increase in the item for sundry creditors and credit balances, including taxation reserves, from £386,959 in the last accounts to £464,420, reflects the effect of increased turnover, in common with the larger amount of debtors appearing on the assets side.

The amount due to Radiation Limited by Subsidiary Companies—£1,233,358—consists of dividend for 1929 declared and to be paid over by the Constituent Companies, together with, as I informed you last year, the balance of the dividends for past years not paid over, charges paid in the first instance by Radiation on behalf of the Constituent Companies, and loans by Radiation to Constituent Companies.

Turning to the assets side, considerable extensions and additions have been made to buildings and plant, and further land has been acquired, so that after deducting the usual sound provisions for depreciation, an increase from £945,052 to £976,398 is shown.

Sundry debtors have increased from £526,191 to £582,103, and cash at bankers from £343,452 to £400,088, while stocks show only an increase of £2273. Investments at £1,366,903 show an increase over last year's figure, notwithstanding that provision has been made against depreciation of gilt-edged investments, and the total market value at Dec. 31 last was in excess of the figure in this account.

The amount of undistributed profits retained in the Constituent Companies has been increased from £667,811 to £749,685, which if deducted from the cost of goodwill, £901,724, would leave a reduced balance of £152,038 for goodwill, as compared with £233,912 a year ago.

According to my usual custom, I propose, with your permission, to make some reference to our past year's work and progress. First of all, it is perhaps interesting to recall that when this Company was formed much thought was given to finding a title that would be as distinctive as possible of the fundamental work and apparatus in which the respective Companies were concerned, and as for many years past I had personally devoted much of my energy and time to research on the subject of radiation, it was decided that no better name could be adopted for the Company than "Radiation Limited." We also succeeded in registering this word "Radiation" as our trade mark. During the past year our right to this mark was challenged, but I am pleased to be able to state that notwithstanding this challenge, which was most severely contested, not only did we succeed in retaining our "Radiation" trade mark in the class in which it was originally registered, but registration of it was granted to us in the other classes for which we had applied. It was clearly necessary to protect the name "Radiation" in every respect by every legal means available, especially having regard to the valuable goodwill which has been created by the vast amount of work and expenditure incurred in establishing that name as being distinctive of our goods.

I can assure you that your Board will continue—as they have done in the past—to take every step possible to defend and maintain the exceptional position they have created for your Company, not only in this country, but throughout the world. I may mention that our most important trade marks, patents, and registrations are protected throughout the world.

"Radiation" has become a household word and is what I might call the hall-mark for all goods of the class we make.

At our annual meeting last year I referred at some length to the new "Beam" radiant for our gas fires, which is the result of our continued research work, and no doubt you have seen it extensively advertised. I hope that our shareholders are using these new "Beam" radiants in their Radiation gas fires.

Our investigations of the effect of radiant energy on the human skin indicated the important part played by the visible and short infra-red rays in stimulating the deeper portions of the epidermis. The results have led us to the view that the degree of comfort attained on exposure to an incandescent source of heat is much affected by the capillary blood flow, which appears to exert a predominating influence. We have continued our investigations of the physical and physiological problems involved in the study of the action of radiant energy on the body, and we now have reasons for believing that exposure to our gas fires with "Beam" radiants may stimulate the power of resistance to certain types of infection. A confirmation of these views will place these gas fires of ours in a position which the gas fire has never hitherto attained.

The "New World" cooker, with its automatic control, the "Regulo," which is the result of many years' experimental research work, has set up the standard by which all other gas cookers are judged. The sales during the past year, not only in this country, but in many parts of the world, have exceeded all previous figures.

Another piece of our apparatus that has proved most successful is our new type of self-contained hot water boiler for domestic purposes called the "Sunhot." In view of the enormous number of new houses that have been, and still are being, erected, a great demand has been created for reliable and efficient means of providing economically an adequate supply of hot water, and one of the advantages of our "Sunhot" boiler is that it does not involve the introduction of a larger gas meter or service pipes—an important feature from the point of view both of the householder and of the gas undertaking. Our pioneer work in this direction is already bringing its reward.

I continue to devote as much of my personal attention as possible to the research work being carried on in our Central Laboratories at Radiation House, and I hope to be able to tell you in due time of the further important developments which we have in hand, and which I feel sure will be the means of adding to the prosperity of your business.

Now with regard to the future, all those who are responsible for the control of industrial concerns must view with great anxiety the difficulties which this country has to face. The increasing expenditure undertaken by the State in so many directions will be a burden that this country cannot sustain without disastrous consequences unless measures are taken for enabling it to compete successfully in the world's markets, and so keep our people fully employed.

It has to be remembered that taxation can only come out of industry, out of payments received for services rendered, and our industries are now burdened with rates and taxation up to the breaking point. Ample evidence of this is afforded by a perusal of the reports and balance-sheets of a number of industrial concerns which have appeared during the past year.

Taxation which is applied to enable a large percentage of the workpeople in the country to draw unemployment benefit without producing anything in return is a direct tax on those who do work, and if constantly extended will lead to national bankruptcy, not only financial but moral.

The State can only be run by money collected in the form of taxes from industry and commerce. If trade is bad, unemployment increases, and the amount of taxes collectable is reduced. If, to overcome the latter effect, the rate of tax is increased, this does not get us out of the vicious circle; we are only laying a still further burden on the cost of production. The real crux of our unemployment difficulty is that our costs are already too high to enable us to compete successfully with the costs of production of other manufacturing nations, and it is high time this fact was fully realized both by politicians and the public generally, so that effectual means may be taken to grapple with the problem.

Methods can be found to increase the trade of the country by enabling our industries to compete successfully in all the markets of the world, and so reduce unemployment to normal conditions. By this means taxation can then be reduced and profits on industry increased, so that adequate wages may be earned by the people of this country to enable them to live in an independent self-respecting fashion, which so many at the present time are not doing, and at the same time, sufficient money can be provided out of industry for the requirements of the State.

These matters of unemployment and taxation on industry are very difficult; but I have great confidence in the future of your business, if these difficulties can be overcome on some such lines as I have indicated.

It is once again a pleasure to me to place on record our high appreciation of the valuable services rendered to us by our staff and all those employed by the Company. Without their help our continued success could not be attained. I now have pleasure in moving:

> That the report and balance-sheet for the year ended Dec. 31, 1929, as presented by the Directors, be received and adopted, and that final dividends be declared as follows: 3 p.ct., *less* income-tax, for the half-year to Dec. 31, 1929, on the 6 p.ct. cumulative preference shares, and 9½ p.ct., *less* income-tax, on the ordinary shares, making, with the interim dividend paid in October, 1929, a total dividend of 12½ p.ct. on the ordinary shares for the year.

European Gas Company, Ltd.

Ordinary General Meeting.

The Ordinary General Meeting of the European Gas Company, Ltd., was held in the Middlesex Room, Great Eastern Hotel, Bishopsgate, London, E.C., on Tuesday, March 11, 1930.

Dr. Charles Carpenter, C.B.E., M.Inst.C.E., Chairman of the Company, presided.

The General Manager and Secretary (Mr. F. Eliot Williams, O.B.E.) read the notice convening the meeting and the Auditors' certificate.

The Chairman, in moving the adoption of the report and accounts, which were taken as read, said the shareholders would have gathered that the year 1929 had not been a spectacular year for the Company; but it had been a year of steady work in the consolidation of the business and in the better utilization of the organization which had been created in order to ensure greater efficiency in all departments, commercial, technical, and clerical. In these circumstances, and in view of the fact that an Extraordinary Meeting was to follow, he proposed to make his remarks rather shorter than usual.

The report informed the shareholders that the quantity of gas sold in the year 1929 showed an increase over the previous year at the rate of 3·37 p.ct., but it did not add the interesting detail that the quantity sold was the largest recorded in the Company's history. It exceeded even the 1919 figures, which were artificially swollen owing to the shortage and the high price of fuel in France at that time, and also to the fact that gas prices could not be adjusted to the changed conditions with sufficient rapidity and were uneconomically low.

It would interest the meeting to know that the gas sales of 1929 showed an increase of 23·29 p.ct. over those of the last pre-war year. The number of consumers, which was not less important, but in some respects more important than the figures for gas sold, had risen in the same period by 38·29 p.ct.

During the period under review trade and industry had remained good in France. Unfortunately the tendency of prices was always upwards, and the cost of raw materials and wages stood in the way of any all-round reduction in the price of gas. The Board drew attention to that because the one thing needed to bring about the extended use of gas was a reduction in its price.

Efforts were being made at several of the Company's works, and with some success, to develop the use of gas for industrial purposes; but, as he had said, to achieve any substantial results it would be necessary to supply gas at a lower figure than the normal price of to-day, and in order to compete with other methods of heating the Company would have to give substantial discounts on present prices. The Board were very carefully studying this question at the present time.

The working results, on the whole, had been satisfactory, but there was still a good deal of room for improvement in many technical details, and the past year's results had fully justified the appointment of a French *liaison* engineer attached to the London office, mentioned by him at the last meeting. That innovation—for it was an innovation—had been working exceedingly well during the past year.

A year ago he had been able to report that there was a definite improvement in the figures for unaccounted-for gas, and having regard to the large amount of money the Board had been spending they had every reason to hope that the figure for unaccounted-for gas would be lowered. Unfortunately their hopes had been disappointed. There were one or two reasons which might account for this. The Board thought it was partly owing to the abnormally severe frosts experienced in the early part of the year. The result of those frosts was common in England as well as in the northern parts of France; the changed temperature of the ground and the pipes caused the development of unsuspected cracks and breakages, and these defects had helped to counterbalance the good that had been done in replacing a number of the faulty mains; so in spite of what the Board had done, and they had done a very great deal, he could only report that the real big blot on the workings—the percentage of unaccounted-for gas—remained practically the same.

He need not say that their efforts were being continued with unabated vigour, and special measures were being taken in the current year to increase the mileage of their pipes to be tested and repaired. He thought that with ordinary seasons they could keep these losses in check, and that it would only be a matter of systematic work to bring the leakage down to a reasonable figure. He had called it a blot on their working. To be strictly accurate, he could call it a legacy of the war period which they had not been able to clear off.

There was obviously a limit to the extent to which one could pull up the streets and upset the traffic of a town for the purpose of putting a system of mains into order. They knew perfectly well what happened in the cities of this country, and it was still more the case in the cities the Company supplied with gas, because the greater part of them were still constructed with narrow streets, which had not been rebuilt to the same extent as in London and some of the other large towns in this country. And the management were not so free, of course, in the streets as they were in the works; they had to spread the work over an extended period in order to minimize the inconvenience which he feared they had caused, and would continue to cause.

From time to time they were pulled up by the authorities and told they must not open up this road or that road.

The report stated that they had completed the main, 4¼ miles long, connecting the Nantes works with Roche Maurice, and that they had, by the laying of that main, been able to put into action the holder erected in the previous year on the new site. The Company would feel the advantage of this holder from the point of view of storage, one of the growing necessities of gas to-day, and there was also the advantage of its usefulness from the point of view of better distribution in the district.

When he was addressing the shareholders a year ago he referred to the new French Social Insurance Law and its effects. The application of this law had been, as those present had doubtless noticed from what had appeared in the papers, temporarily postponed, and pending the issue by the French Government of detailed information as to the manner in which that law was to be applied, and the special method which would govern its application to the gas industry, the Board had not been able to make any serious progress with the modification of their own schemes to suit the requirements of the law, in respect of pensions, and so on, for the Company's employees. They had, however, been able to proceed with the preparation and adoption of definite statutes setting out the terms of employment of the staff and workmen, and these had now been finally accepted by their employees and the different municipalities and in most cases formally approved by the Government. The practice was different from that in this country. The employees were entitled to have the complete statutory conditions set out in black and white.

He thought he ought to tell the meeting, as an item of news, that last June the Company had the pleasure, and he thought he might say the honour, of acting in conjunction with the local French Company as hosts of the Association Technique in France on the occasion of the annual conference of the Association, for which the town of Rouen had been selected. He might remind the shareholders that there were two gas companies at Rouen, their own being one of them. This had been the first time since the visit to Havre in 1905 that a French Gas Congress had been held at a town in which the Company was interested, and he thought he could say that the Congress at Rouen was a very successful one, and increased in every way the good feeling which existed between the Company in London and the managers in France and their colleagues there.

The balance-sheet showed so little variation from that of a year ago that it was not of much use to take the shareholders through the figures in detail, but he would be very glad to answer any questions that might be asked. The Board had made certain modifications in the form in which the balance sheet was presented, and that had been done to comply with the stipulations of the Companies Act of 1929, which came into operation on Nov. 1 last. These were merely differences of wording, and they did not in any way affect the figures or the information given. The profits had been rather more than maintained, and the Directors proposed the distribution of a dividend at the same rate as for 1928—namely, 5½ p.ct. for the year, free of tax.

On several occasions he had referred to the desirability, indeed, he might say the necessity, of increasing the Company's reserve of undivided profits which figured under the heading "General Revenue." This was the only reserve they had available to draw upon in any time of emergency, and it had stood the Company in good stead during the war, as a result of which it was reduced from £120,000 to nothing. With the expressed approval of the shareholders, the Board had started to build it up again, and on the present occasion they proposed to carry to it the slightly increased balance left after paying the 5½ p.ct. dividend. General revenue would in this way be brought up to £39,000.

He had received a letter which it might be appropriate to deal with at once. It was from a shareholder expressing surprise that more information was not disclosed. Well, he did not know what more the Directors could tell the shareholders. The story was one that they had been telling with greater or less variations for many years past, and it was always open to any shareholder who was particularly interested in any point to inquire at the office, either verbally or by letter, and in that way to receive all the information he desired; but there were reasons against making any change from a practice the Board had followed for a great many years, and which had certainly been in the interest of the shareholders. He did not think it would be in that interest to go further than they went at present.

The meeting would expect him to say something with reference to the rumours that were current a year ago with regard to the undertaking. At the last meeting he had given the shareholders all the information on the subject that was in the possession of the Board. As he had said then, there had been no offer, neither had there been any negotiations, and he had added that statements to the effect that the matter had proceeded further than he had indicated were unauthorized and untrue. His words a year ago were to the effect that "the shareholders may rest assured that if and when a time comes that a further announcement in the interest of the shareholders as a whole can properly be made, it will be done." Since that date there had been no further developments. The preliminary inquiries which had been made were not followed up, and nothing had occurred which would warrant the Directors in making any further announcement. They were at present working to carry on the organization, which had been in existence nearly a century, and which, as he had said, they were continually bringing up to date; he thought it was in the best interests of the Company that they should go on setting things right, improving their working, and continuing the relationship, a very happy one, which had existed for so long with the municipalities.

He had reason for his conviction that there was a large field open for an extension in the use of gas in France. Since the war France had had a period of industrial prosperity and had rapidly adjusted her commerce and industry to the altered conditions of the present day. Factories and workshops had been and were still being brought up

to date, and in this process he was sure gas could play its part as an up-to-date fuel, efficient, clean, and easy of control and regulation. Not only had France re-organized her industries, but she had strengthened her position financially, and was on the way to making Paris a great financial and monetary centre; and with the possibility of some reduction of taxation, everything tended to increase the prosperity of France, and he welcomed these changes because the European Gas Company might look forward to sharing in a humble way in that stability and prosperity.

There was one matter he must not forget to mention, and that was in regard to the Deputy-Chairman, Mr. F. H. Jones. Mr. Jones became Consulting Engineer to the Company in 1904, and a vacancy occurring on the Board in 1920 the Directors felt that his knowledge of the Company's business was such that he would make a most suitable person to fill the vacant position. He (the Chairman) had a certain responsibility in the matter, though he was not Chairman at the time. Mr. Jones was accordingly elected to the Directorate, and after reading the Articles his colleagues asked him to retain the position of Consulting Engineer. Later, doubts were raised as to the propriety of his holding the two posts, and he resigned both positions, and was then re-elected a Director. The point had arisen through a misapprehension, and the Board did their best to rectify it.

He regretted to say that Mr. Brady, a former Secretary, who had retired in 1928 from the position of Auditor, died in April last.

He moved: "That the report of the Directors and the statement of accounts for the year ended Dec. 31 last be received and adopted."

Mr. F. H. Jones (Deputy-Chairman) formally seconded.

Mr. R. M. Long asked if the Company had the same difficulty in France as companies in England had in the matter of residuals. Most companies complained that residuals had been a very bad market.

The Chairman replied that, speaking generally, residuals were doing better in France than in England. In France most of their works were working up their sulphate of ammonia at a profit. There was an increasing market in France for tar for use on the roads, and coke was also doing well.

The resolution was carried.

The Chairman moved: "That the interim dividend of 4s. per share paid on Oct. 1 last, *less* 4d. per share for French stamp and transfer duty, in respect of shares held in France, is hereby confirmed. That a final dividend for the year ended Dec. 31 last, at the rate of 7s. per share, be now declared; such final dividend on all shares of the Company to be paid on April 1 next, the whole out of interest and profits and free of income-tax, subject, however, to a deduction for French stamp and transfer duty of 4d. per share in respect of all shares held in France."

Mr. F. H. Jones (Deputy-Chairman) seconded the resolution, which was carried.

The Chairman proposed, and Mr. A. M. Paddon seconded, the re-election of Mr. Frank Harding Jones and Mr. William Graham Bradshaw as Directors of the Company.

The proposition was carried.

Mr H. S. Reeson proposed, and Mr. E. L. Burton seconded, the re-election of Mr. G. C. Goldsmid and Mr. B. Dennett Holroyd as Auditors of the Company, at the same remuneration as last year.

The proposition was carried.

Mr. B. Dennett Holroyd, F.C.A., returned thanks for himself and his colleague.

EXTRAORDINARY GENERAL MEETING.

The General Manager and Secretary then read the notice convening the Extraordinary General Meeting.

The Chairman said he had to address himself to the two resolutions set out in the notice, and in order to avoid any misapprehension he would at once say that the modifications in the objects of the Company and in its Articles were not in any way consequent upon or in anticipation of any pending or expected developments of a definite nature, nor were they connected with or a result of the rumours to which he had referred at the Ordinary General Meeting. But the Directors had felt for some time that the Company might be unnecessarily restricted in the scope of its operations, as compared with similar companies in France, by the very limited nature of its objects as set out in the Deed of Settlement of 1835. A situation might arise in which it would be well for the Directors to be able to take advantage of a favourable opportunity of extending the Company's sphere of activity, and the opportunity might be lost if they had to take hurried steps to get the necessary powers.

The Companies Act of 1929 gave the Directors a convenient opportunity for reviewing the whole position, and they had arrived at the conclusion that it would be desirable to give the Company such extended powers as were general nowadays for companies of a similar nature, and in drafting the Memorandum of Association all probable eventualities had as far as possible been provided for. Under Clause 2 of the Deed of Settlement of 1835, which had been circulated to the shareholders, the Company could not purchase a supply of coke oven gas. They had no power to acquire an interest in other undertakings similar to their own, nor could the Company enter into any working arrangement with a neighbouring company, nor participate in a supply of electricity, nor promote subsidiary or local companies to facilitate the carrying on of any part of its business. The absence of powers in those respects might prove a disadvantage to the Company, and these powers were provided for in the new Memorandum of Association, in which the new clauses were based very largely on the powers already possessed in France by similar companies there. He need not remind the shareholders that, except that the capital was held in England and the headquarters of the organization were in London, the Company in other respects was equivalent to French companies carrying on a gas supply under normal conditions.

The Chairman proceeded to read the draft Memorandum of Association and the Articles of Association, commenting on the new ones and pointing out where changes were merely formal or made in order to conform to the provisions of the Companies Act, 1929.

The first sub-section of clause 3 in the Memorandum gave the Company power to manufacture gas, &c., and there was a drafting modification changing "France and other parts of Europe" to "France and elsewhere." The clause went on to give power to manufacture, buy, and supply electricity and other means of heating, &c. It would be an advantage to possess these powers, for a great many important French companies were associated with other undertakings having powers for the supply of electric energy.

Clauses 8 and 9 contained provisions which might be useful, including powers to borrow and raise money for the purposes of the business and to enter into partnerships and share profits with other undertakings. This was very desirable, having regard to some possibility arising in future of entering into a working arrangement with a neighbouring company. Power was also provided for establishing or helping to promote any other company, and it was desirable that there should be power to take an interest in similar undertakings if a good opportunity offered. Clause 14 gave power to establish, support, and subscribe to funds for the establishment and support of, institutions, associations, funds, trusts, and schemes calculated directly or indirectly to benefit the Company or its employees.

It would be seen that the Memorandum would give the Company powers of a kind which he believed the shareholders would agree should be possessed if the undertaking was to carry on its business without undue restriction.

Reading through the Articles of Association, the Chairman called attention to Article 77, dealing with Directors' fees. On this subject he had received three letters. In one of them a fairly large shareholder seemed to have the idea that a Director of the Company was entitled to about £130 per annum to cover remuneration and out-of-pocket expenses. Another shareholder suggested that the remuneration should be paid gross, and a third letter asked what services the Directors were rendering which justified an increase in fees. He would like to say one or two words with regard to these letters. It was suggested that the fee for a Director should be £130. Now, they could get Directors at £130 if they wanted them, but he suggested that the shareholders did not want them, and——

Mr. E. L. Burton: Is it worth while discussing this? I think everybody in this room is content. [Applause.]

The Chairman said he was very much obliged for that expression of opinion, and he would not go into the matter further. The remaining question was that of the increased remuneration of the Directors. He was not in the fortunate position of being a Director before the war. His service as a Director began some time after the war broke out, and with his colleagues he had ever since been engaged in correcting the troubles and getting over the difficulties arising out of the changed conditions which the war had brought about. There were two ways in which improvement in the future was possible, and the way to which he attached the greatest value was in respect of their working results. It might be asked why the Company was not paying a larger dividend—why not pay something like the dividend that was paid before the war? The answer was that, as they were at present constituted and on their present scale of working, it would be necessary to charge something like double the present price for their gas. The Company was charging practically the same price as was being paid in other similarly situated towns in France. He could not hold out that any higher prices could be charged, even if it was allowable by the terms of the Company's modified concessions. The Company's relations with the municipalities were based upon the concessions granted by them. All those concessions became out of date as a result of the war, and the Company had had to go to the municipalities and negotiate a change in the conditions under which the undertaking supplied gas in the various districts.

There was another reason why the price should not be raised; if it were done, it would be disastrous, because it would mean, he believed, that instead of getting more money they would get less, for there would be a large reduction in the amount of gas consumed. That was the real answer; they were charging as much as similar undertakings. His hope in the future was that they could improve their working and increase the amount of gas sold per ton of coal. If they could make every ton of coal taken into the works more profitable, they would be realizing that hope.

The shareholders had a unique Board for the carrying out of operations of that sort. They had something more than a Board of Directors; they had a Council of Administration composed of men who had had a lifelong association with the gas industry, so in that respect the Company was in a particularly good position. He thought it was exceedingly important in the interests of the Company that they should have men who could give the best possible advice and work in the direction most likely to be profitable and useful to the undertaking. He had tried to put up in the last few years an effective piece of machinery with regard to the works. The increase of that machinery was going on, and they now had a structure with which he was very pleased. In future, they would have a Memorandum and Articles, if the meeting approved, which would enable the Board to take advantage of opportunities which might arise; but what was the good of machinery if they had not the proper motive power to work it? A properly constituted and properly paid Board was as necessary as the machinery.

It was, of course, clear to the meeting that the matter did not finish with the passing of the resolutions. What the meeting would do would be to give the Board authority to go to the Court, if the resolutions were approved. When the sanction of the Court was obtained the shareholders would be invited to send in their share certificates to be exchanged for stock certificates, and from that time the Company would be quoted on the Stock Exchange on the basis of £100 stock instead of as at present per £10 share, and the stock would be transferable in units and multiples of one pound. He formally moved:

1. That the Memorandum and Articles of Association submitted to this meeting and signed for identification by the Chairman

be approved and that the form of the Company's constitution be altered by substituting such Memorandum of Association with the extended objects as therein set forth and such Articles of Association for the Company's Deed of Settlement and all Regulations of the Company subsequently made and now in force and that the Directors be authorized to apply to the Court to confirm this resolution.

Mr. F. H. Jones (Deputy-Chairman) seconded.

Mr. E. L. Burton said he would like to see a provision inserted that the Auditors should be professional accountants. The shareholders trusted the Board completely, but they were dependent on their Auditors' services. He thought it was a great mistake to appoint laymen, and to have anybody but a properly qualified accountant.

The Chairman replied that on the general principle he was sympathetic with that suggestion. The best answer he could give was that the Board had followed the new Companies Act, which had been very fully discussed, and which, he thought, defined the duties of auditors with a certain amount of clearness. But the Board had not been content with what one might call the official auditorship. As a matter of fact, the Company's accounts were, in addition, subject to the oversight and the report to the Board of a professional firm of accountants.

The resolution was put to the meeting and carried.

The Chairman then moved the following resolution:

2. That upon the sanction of the Court being obtained to the alteration of the Company's constitution in manner aforesaid whether with or without modification the whole of the shares in the capital of the Company other than the shares in respect of which share warrants are outstanding at the date when such sanction is obtained be converted into stock and that such exchepted shares as and when any person becomes registered as the holder thereof be converted into stock and that the Directors be authorized to carry this resolution into effect.

Mr. F. H. Jones (Deputy-Chairman) seconded.

The resolution was carried.

The Chairman proposed a vote of thanks to the staff in London and abroad for their services during the past year, saying he thought the staff greatly appreciated a vote of this kind. Except those members of it who were in London they lived and worked remote from headquarters. He was pleased to say there was a general desire on the part of the technical and commercial staff to come over to this country and take advantage of much that could be seen, particularly in London and the large provincial towns, of the modern working of gas undertakings, both commercially and technically. The staff abroad were very willing to take advantage of the facilities the Board were able to give them. [Applause.]

Mr. E. L. Burton seconded the proposition, which was carried by acclamation.

The General Manager and Secretary returned thanks on behalf of the staff.

Mr. R. M. Long proposed a vote of thanks to the Chairman and Directors for the accounts they had put before the shareholders. These accounts showed steady improvement, and it was pleasant to hear from the Chairman that there were prospects of still further development.

Mr. H. S. Reeson seconded, and the proposition was carried, with applause.

The Chairman, replying for himself and his colleagues, said they had done their best, and if there was not as much to show as they would have liked they must hope for more in the future. The Board had had very difficult times to go through, but with the help of the staff they had been able to do a great deal of good work, and, as Mr. Long had remarked, the accounts gave proof of this.

Lea Bridge District Gas Company.

Annual General Meeting.

The Ordinary Annual Meeting of the Company was held on Tuesday, March 11, at the Company's offices, 63 and 64, Chancery Lane, London, W.C. 2—Mr. A. M. Paddon, M.Inst.C.E. (the Chairman), presiding.

The notice convening the meeting was read by Mr. Henry Hand, the Secretary; and the report of the Directors and the statement of accounts for the year ended Dec. 31, 1929, were taken as read.

The Chairman, proposing the adoption of the report and accounts, said he knew the proprietors would forgive him if he departed a little from the usual procedure, and referred at once to what was almost the last paragraph of the report.

Mr. F. W. Cross's Services.

This paragraph informed them of the accession to the Board of Mr. Frederick W. Cross. He was not with them that day, because his health had compelled him to take a trip abroad, and this was not exactly the period of the British year at which one would elect to return. Later on they would have Mr. Cross with them again; but meanwhile, in his absence, it was perhaps possible to refer a little more freely than might otherwise be allowable to his record with the Company, which was of an entirely exceptional nature. Mr. Cross joined the undertaking in 1895, when the sale of gas was about 85 million c.ft. As they saw, it was to-day nearly 1000 millions, and something like 35 years had passed in the interim. He thought they would agree that the accounts were highly satisfactory in general; and if they examined them in detail, many excellent qualities would be discovered. But whether taken in general or in particular, the complexion they presented very largely reflected the skill and devoted service of Mr. F. W. Cross. The prosperity or the development of an undertaking of this character depended in the first place upon a proper and effective policy on the part of the Directors. This was a good deal. It depended also upon the legislative enactments under which the concern operated. But when all was said and done, the more intimate and ultimate results bringing forth the profit were due to the chief executive officer. It was largely with him to make or mar according to his ability or the quality of his service. He could pay no greater compliment to Mr. Cross than to refer them to the position of this Company to-day, which was so largely due to his loyal service and endeavour. Glancing at things as Mr. Cross found them, and at things as they existed now, would teach them a great deal regarding the changes going on in the gas industry generally. These changes were sometimes so rapid and so subtle that they escaped observation, and did not evoke the changes in administration and method which they called for. In those days when Mr. Cross joined the Company, 35 years ago, gas was really supplied to the more opulent portion of the community. It was then something to have gas in the house, as was the case with electric light to-day. It gave a little prestige. The poorer element were not able to attain to it, because it had not the utility then that it possessed to-day. Formerly it was the perquisite and the luxury of the rich; to-day it had become the requisite and the necessity of the poor. So their business had been slipping down from a few consumers of an important kind to a very much larger number of consumers of a less important kind; but the basis had been broadened, and the business had been made no less secure. It had been borne in upon them that if they were to take advantage of such potentialities as gas possessed, they must be ready to accommodate themselves to this trend.

Steady Progress.

During the year under review, they had made steady progress—a little more than the ordinary amount, but not very much. Considering the rapidity with which their output had developed in the early months of last year, it was really only a moderate rate of increase. While they sold a great deal of gas in the early months, this was followed by a slowing down in sales towards the end of the year; but it was sometimes forgotten that all through this last year there had been a running contest between gas and coke as produced by the gas undertakings. One of the primary uses of gas up to quite recently was the providing of hot water in the household, and it was employed for this purpose to a remarkable degree; but of late the coke boiler as a method of heating water had been almost universally taking its place in houses of the smaller type. This suited the gas industry exceedingly well: but he did think, from what he had been able to observe, that towards the end of last year there was a very considerable reduction in the use of gas, in favour of coke for the useful service of heating water. This development, he thought, might continue, and might have a certain qualifying effect on the sales of gas. This need not, however, affect them in the smallest degree. If they took pains to study the results of the various gas undertakings, they would see that the industry had held its own more or less generally in the matter of coke, whereas it had fallen very badly with tar. The public were now able to buy coke in quantities and qualities which were not available to the same extent a few years ago. The gas companies were preparing it for the various uses for which it was required, and delivering it in quantities and in a manner in which the consumer could take it, and, what was more important, under conditions in which he could pay for it. The man who wanted coke could get it as and when he wanted it, and in the particular amount required, and this constituted a certain kind of new competition of coke with gas within the industry.

The Accounts.

With regard to the accounts themselves, there was not a great deal with which he need detain them. The capital account bore signs of considerable activity during the year, as they had expended over £80,000, which was reduced by some £26,000 by depreciation, leaving about £54,000 as representing the expenditure for the period under review. This expenditure was very well represented in the highly efficient form of plant they possessed to-day. The Lea Bridge Company afforded a striking instance of an undertaking which was producing its gas entirely from vertical retorts. The results were good, as was to be ascertained by examination; but it was not often that one found production of gas by vertical retorts unassociated with any parallel process, and the interest of these accounts was that they represented on a considerable scale the efficiency and economy of the production of vertical retort gas. The good results were very much due to Mr. F. W. Cross and Mr. D. Cleave Cross, who had worked uninterruptedly on the plant for a long time, and very much to the satisfactory development of the process as viewed by what had been done at the Lea Bridge Gas-Works. The expen-

diture to which he referred represented further carbonizing plant of this type. They were over-spent in capital by some £63,000, which they had not had to raise, and therefore did not have to find interest on. It would be seen that the total capital expenditure was some £453,000, and it stood at only £455 per million c.ft., with the prospect of opportunity for reducing this low amount still further.

FAVOURABLE PRICE OF GAS.

In the revenue account, there was a very significant figure, which told them that the Company had been selling gas at 8·6d. and 8·4d. per therm. The latter figure was striking, because it was slightly below the price of gas sold by any of their three great central neighbours, and this was some credit to them. The sale of gas now approximated 1000 million c.ft. a year, and during the period under review they had added some 56 millions by way of increase. Private lighting had brought in £2302 more, rental of meters £633 more, and stoves and fittings £1486 more, or a total increase of £4421. There was rather a significant omission from this statement, inasmuch as no mention at all was made of public lighting. The explanation was that the Company had none. This was not because gas was not adaptable to public lighting. The best parts of Paris were lighted by gas; Parliament Square and Whitehall were similarly illuminated, as were also Regent Street and Fleet Street. Indeed, where the very best effect was obtained in the matter of public lighting, it was still done by gas. But the Lea Bridge Company had not in the streets a single burner to exemplify that method of illumination in Walthamstow or Leyton. It looked as if what was good enough for the important thoroughfares he had named was not regarded as good enough for Walthamstow or Leyton; but the real reason, of course, was that the supply of electricity was in the hands of the Municipalities, and their natural inclination was to favour the commodity for which they were responsible. A striking figure was, however, brought to the attention of the Board recently, when the Electrical Authority applied for £132,000 from the Government apparently for the purpose of laying electrical services, as far as he could see, indiscriminately in all the streets. Well, this was not business. There was no commercial soundness behind such a proceeding, and it did not seem quite equitable that this money should be provided in competition with an undertaking like their own, which was perfectly able to do more economically all that was expected from electricity. This, however, would give them some idea of the difficulties of the situation. There were far more important gas companies than theirs, who had still quite a big percentage of public lighting. It was to the credit of the Company that they were able to meet the shareholders that day with a statement from which all forms of public lighting had been eliminated, and which revealed such good results produced on a purely commercial basis. This argued the stability of the business.

The expenditure was £6480 more, and the profit some £4769 less, and in the light of what he had told them about the price of gas this reflected a deliberate policy.

PROFIT AND LOSS.

When, however, they came to the profit and loss account, they found that they had brought in £35,036, and were taking out £35,177, so that the profit still sufficed to meet all their requirements in the way of dividend and interest and other charges, and leave them £141 better off than they were twelve months ago, and with a lower price of gas. This was a very fair epitome of the position to-day. There had been carried to the special purposes fund £1935, and the repair and maintenance charges had been retained at something like 18d. per 1000 c.ft. There were in the revenue account two charges not likely to recur—expenses on issue of debenture stock, and expenses in connection with the re-assessment. This fact, from the point of view of normal charges, improved the statement to some extent. To the benefit fund it would be seen that they had transferred from revenue £1203. They had dispensed from the fund £1253, but this inequality was due to the fact that they were not allowed to accumulate more than now appeared in the fund, so that instead of carrying more to the fund they had credited it merely with the £1203. The benefit fund had an accretion of over £9000, which safeguarded the position for the moment. The whole question of pensions and gratuities would, however, have to be reviewed in the light of newer circumstances. This fund was formed in 1912, and it was obvious that they must have some revision of conditions with regard to prospective benefits. Old obligations must remain. In the balance-sheet there was a suspense amount on account of inclined retorts of £17,500. He had told them that the production now was entirely from vertical retorts. This meant that they had abandoned the inclined retorts installed some 32 years ago. It would not be reasonable to write them off entirely in any one year, and so the Directors would deplete this amount from time to time as circumstances permitted. On the other side of the balance-sheet there would be noted provision for future renewals of vertical retorts, £23,400, which showed that the Directors still regarded the vertical retorts as something of a new departure, and so thought it safer to make provision with regard to maintenance and depreciation which had not yet accrued.

The DEPUTY-CHAIRMAN (Mr. G. W. Carey) seconded the motion for the adoption of the report and accounts, and it was carried unanimously without discussion.

DIVIDENDS.

On the proposition of the CHAIRMAN, seconded by Mr. E. L. BURTON, dividends were declared for the half-year ended Dec. 31, 1929, at the rates of 5 p.ct. per annum on the 5 p.ct. preference stock, 6 p.ct. per annum on the 6 p.ct. preference stock, and 8½ p.ct. per annum on the consolidated ordinary stock, all *less* income-tax.

The CHAIRMAN proposed the re-election as a Director of Mr. E. L. Burton, who, he said, brought to the Board a ripe experience of the industry, and no one could fill the position more appropriately than he did.

The DEPUTY-CHAIRMAN seconded the resolution, remarking that he had had the pleasure of working with Mr. Burton for something like 26 years in one capacity or another, and he endorsed what had been said as to his eminent fitness for the position.

This was agreed to, and the retiring Auditor (Mr. Hyde C. Burton) was re-elected.

The CHAIRMAN then proposed a hearty vote of thanks to the officers and co-partners generally for their services during the year. He said that he rather stressed the co-partnership side because it was characteristic of the whole of their undertaking from top to bottom. The value of co-partnership had nowhere been better demonstrated than at Lea Bridge. It had been operating only seven years, but in this time it had been most efficacious in knitting together all ranks in striving for the best interests of the Company. The system had indeed worked well, and it embraced every branch of the service.

The vote was accorded with acclamation, and acknowledged by Mr. HENRY HAND (the Secretary) and Mr. D. CLEAVE CROSS (the Engineer and Works Manager). The latter remarked that everything possible had been done for the men on the works, and this had helped to create the good feeling which undoubtedly existed.

The proceedings concluded with a vote of thanks to the Chairman and Directors, on the proposition of Mr. R. E. GISBURNE.

Gas Companies' Results in 1929.

Growth in Sales Well Maintained.

DOVER.

The accounts of the Dover Gas Company for the past year show that there is a total available balance of £13,072. The benefit accrued to the consumers from the reduction in the price of gas as from the commencement of the year enables the declaration of a dividend above the basic rate. The Directors, therefore, recommend a final dividend at the rate of £4 15s. p.ct., *less* tax (making with the interim dividend paid in September 8½ p.ct. for the year). This will entitle the employee co-partners of the Company to a distribution among them of a sum equal to 1 p.ct. on the capital. The Directors propose to reduce the price of gas from 10·4d. to 10d. per therm as from the March reading of the meters. Notice has been given by a shareholder of his intention to propose at the Annual Meeting an increase in the remuneration of the Directors.

EASTBOURNE.

The Ordinary General Meeting of the Eastbourne Gas Company was held on March 6—Mr. F. Eliot Williams, O.B.E. (the Chairman), presiding. The Chairman, in moving the adoption of the report and accounts, said it had obviously been a good year for the Company. There had been an increase of over 4 p.ct. in the amount of gas consumed, and an increase of 460 in the number of consumers. The number of cooking and heating stoves on hire had increased by 264, and, in addition, a very large number of stoves and apparatus had been sold outright and had become potential sources of consumption. The total consumption of gas in the past year was a record in the history of the Company. In addition to increasing their consumption in Eastbourne, they had increased their area of supply. They had carried their mains to the Dicker and were connecting-up consumers there; also to Jevington and very nearly into Friston, and they would soon be supplying East Dean; and they had carried the mains beyond Hellingly, and were actually supplying the asylum and the whole of the buildings in the grounds. At the present time their area of supply covered 70 square miles, which was a very big area to be supplied from one centre. The price of gas during the whole of the year was 9d. per therm, and though that was a substantial reduction on the price in the previous year they kept up their revenue owing to the increased quantity sold. Mr. Williams then formally moved: That following the interim dividend already declared and paid for the half-year to June 30, a dividend be and is hereby declared for the half-year ended Dec. 31 last, at the rate of 8½ p.ct. per annum upon the £65,000 "A" stock; and at the rate of 7 p.ct. per annum upon the £198,000 "B" stock; and at the rate of 5 p.ct. per annum upon the £3150 5 p.ct. preference stock. Mr. Bradford seconded, and the resolution was carried.

HASTINGS.

The increased consumption of gas in the Borough was a satisfactory feature of the Directors' report submitted at the annual general meeting of the Hastings and St. Leonards Gas Company, held at the Company's Office, Queen's Road, on March 6—Mr. J. Macer Wright, J.P. (the Chairman), presiding. In moving the adoption of the report and accounts (extracts from which have already appeared in the "JOURNAL"), the Chairman said there had been an expenditure of £124,836, with an income of £153,314. The

sum required for dividend now recommended, interest on debenture stock, customers' deposits, income-tax, and the interim dividends, paid last September, was £28,164. The re-assessment of the Company's property resulted in a serious addition to revenue expenses. It was satisfactory to note that the increase in the number of consumers continued—the increase last year was 554. Also that the demand for all kinds of appliances continued. Without reckoning hire-purchase, or hire, they disposed of 1000 appliances last year. "Incidentally," continued the Chairman, "I may remind you that we are still growing. If you look at the capital account you will see that an expenditure of £13,391 is shown. Part of this expenditure is represented by the new oil gas plant which, Mr. Botley tells me, is the first real addition to the manufacturing plant at Glyne Gap Works since they were first brought into use 25 years ago. Expenditure is also shown for main extension in the rural district. The action taken during recent years has justified expectation. We can point to Battle as a decided success, and there is good promise of success for other extensions. You will see, on turning to the special purposes fund, that the amount stands at £17,150, as against £14,087 last year."

HORLEY.

The Ordinary Half-Yearly Meeting of the proprietors of the Horley District Gas Company was held at the Gas Offices, Station Road, Horley, on March 4—the Chairman, Mr. H. J. Randall, presiding. In their report, the Directors stated that the profit and loss account showed an available balance of £4974, after providing for the fixed charges for interest. The Directors recommended payment of dividends at the rate of 5 p.ct. per annum on the preference stock; 11 p.ct. per annum on the "A" capital stock; and £7 14s. p.ct. per annum on the additional "B" capital stock (all *less* income-tax), which would absorb the sum of £2355, leaving a balance to be carried forward of £2618. In moving the adoption of the report and accounts, the Chairman said: Our coke sales have improved to the extent of £63, and, at the moment, we are disposing of our surplus make in a very good market. We are also undertaking to supply all grades of coke in small quantities of one hundredweight upwards delivered to any part of our district, and this will, no doubt, further enhance our receipts of this particular bye-product. Tar and sulphate are responsible for a drop of a little larger amount than our net decrease in receipts. We have, however, just entered into a favourable agreement as far as this Company is concerned for the disposal of the whole of our surplus tar and for the removal of ammoniacal liquor. As compared with the corresponding period, the sale of gas shows a slight percentage decrease, due to the variation in the climatic conditions; but, taking a twelve months' comparison—that is, for the year ended December, 1929, as compared with the year ended December, 1928—a substantial increase is shown of over 5¼ millions, or 5·97 p.ct. As you are aware, our statutory area of supply is very large and scattered, and I am pleased to say that in some parts of our district there is evidence of new building, and we look with confidence to a continual stream of new consumers. During the half-year we have added 68 new consumers and 122 extra appliances. Our profit and loss account shows an available balance of £4974, after providing for fixed charges, &c., and a proposition will be put presently to pay dividends which will absorb an amount to leave a balance to carry forward of £2618, as against £2767.

ILFRACOMBE.

The Annual Meeting of the Ilfracombe Gas Company was held in the Board Room of the Company, High Street, Ilfracombe, on Feb. 18—Mr. R. M. Rowe, C.C. (Chairman of the Company), presiding. The Directors' report was as follows: The profit and loss account shows, after paying an interim half-yearly dividend of 2½ p.ct. on the preference stock and 3½ p.ct. on the consolidated ordinary stock, an available balance of £3971, out of which the Directors recommend a further payment of 2½ p.ct. on the preference stock and 3½ p.ct. on the consolidated ordinary stock. Moving the adoption of the report, the Chairman said: The sum of £255 was expended during the year in the purchase of a standby vertical boiler at the works, and this sum has been properly added to the "capital account." I would here state that during the current year, arrangements have been made to provide an outer lift to the existing spiral-guided holder, at an approximate cost of £1600, which will be debited to next year's capital account. The need for increased capacity for storage of gas has been felt for a long time past. Turning to the revenue account, it will be seen that the gross cost of coal into the Company's stores amounted to £10,886, against £10,426 for 1928, and the total quantity of coal carbonized was 7760 tons against 7330. Management costs are down, bad debts are less, and legal expenses are increased by £48 consequent on the assessment appeal. Coming now to the credit side of the revenue account, it will be observed that the receipts from the sale of gas are up by £767. There has been an increase in sales to the general gas consumer of 15,403 therms, or 3,239,000 c.ft., and to the Local Authority of 1504 therms or 316,700 c.ft., making a total increase for the year of 16,907 therms, or 3,555,700 c.ft. Rent of meters is increased by £61, and the profit on the sale of gas fittings is up by £144. The total number of gas appliances sold and fitted during the year was 346, an ever-growing number. Gas fires are becoming more popular than ever; no less than 169 of these were sold in 1929. An order for twenty gas fires from one hotel company, whose directors have decided to equip their hotel with modern gas fires was received last week, and the Sales Department is alive to the fact that there is a fine field to be worked in a seaside and health resort like Ilfracombe for the provision of this kind of modern gas equipment, which adds to the comfort of guests in hotels and other houses, whether new or reconditioned. Summing up the year's work, the gross profit for 1929 was £4225, which is more than sufficient to meet standing charges; but which is less by £451 than the profit of the previous years.

ISLE OF THANET.

The Annual General Meeting of the Isle of Thanet Gas Light and Coke Company was held at the Company's Offices, the Dane, Margate, on Friday, Feb. 21, 1930—Mr. Walter Hills (Chairman of the Company) presiding. The Chairman, addressing the Meeting, said: During the year under review, we have attained a result, long desired by our officials and my colleagues, in manufacturing over 500 million c.ft. of gas in one year, and as you will see by referring to the statement, the exact figure is 515½ millions. We are greatly encouraged by this splendid forward step towards the next coveted goal of 600 millions. It is also a matter for congratulation that, though the manufacture of gas is greater by approximately 15 million c.ft., the capital expended is again reduced, consequent upon the depreciation allowance being greater than the outlay, on new meters; and these two factors have lowered still further the amount of capital expended in the prosecution of our business, from £362 to the remarkably low figure of £348 per million. The quantity of gas sold is greater than the previous year by 16 million c.ft., clearly indicating the value set upon its suitability and constancy of supply by our consumers; and this also is very encouraging. As the result of the reduction in the price of gas last year, the revenue from the sale of gas shows a substantial decrease, as indicated in the statement of accounts, to the extent of about £3200. It will be observed that notwithstanding the improvements in public lighting and the extension of the town, the cost of this public service is about £400 less, though the quantity of gas used has substantially increased, thus exemplifying the progressive policy of the Margate Corporation. The balance of profit from the revenue account—*i.e.*, £13,349—has been carried forward into the profit and loss account, and this, with the balance of £10,654 from the previous year—after paying all the standing charges—leaves the sum of £11,461 to be carried forward to next year's accounts. It will come as an agreeable surprise to you that your Directors should have contemplated a further reduction in the price of our staple commodity—gas. We have decided further to reduce the price of gas by ½d. per therm, making it 8d. per therm (approximately the equivalent of 3s. per 1000 c.ft.), to take effect from the end of the current quarter, so that our consumers may share in our success. In addition to our having successfully passed the 500 million c.ft. mark in "gas made," perhaps it will be interesting to know that, during the exceptionally severe weather conditions last February, we had an increase of 25 to 30 p.ct., compared with the corresponding days of the previous year; indeed, at that time, were were manufacturing a quantity of gas, equal to our heaviest output in the summer, with an average increase over two weeks in February of 23½ p.ct. Our maximum day's output occurred again in August, when over 1,900,000 c.ft. were distributed, and, for the first time in the history of the Company, over 13 million c.ft. were supplied in one week. I beg to formally move that the report and balance-sheet be adopted, that the report be entered upon the Company's Minutes, and to declare a final dividend of 4 p.ct.

NORTH MIDDLESEX.

The sale of gas by the North Middlesex Gas Company for the year shows an increase of 8·76 p.ct., compared with that for the preceding year. The price of gas was reduced from 9·8d. per therm to the current price of 9·4d. per therm as from March 31, 1929. The profit for the year (including interest received) after charging interest on debenture stock and temporary loans, income-tax, &c., and appropriating the sum of £2000 for superannuation, amounts to £17,650, which, with £5179, brought from the previous year makes the disposable balance £22,835. Interim dividends on account of the year ended Dec. 31, 1929, declared by the Directors, were paid on Sept. 3 last at the following rates—viz., on the 5 p.ct. preference stock, 5 p.ct. per annum; on the 6 p.ct. preference stock, 6 p.ct. per annum; and on the standard consolidated stock, 7½ p.ct. per annum (*less* income-tax), and the Directors now recommend the declaration of final dividends for the year ended Dec. 31, 1929, at the same rates (*less* income-tax), making a distribution for the year of 7½ p.ct. on the standard consolidated stock. These appropriations (includng the interim dividends) amount to £16,910, leaving £5925 to be carried forward to the credit of the profit and loss account for the current year. The sum of £66,239 was received during the year as the result of issues of £38,160 6 p.ct. standard consolidated stock and £25,000 5 p.ct. redeemable debenture stock, the additional capital being required to provide plant to meet the increasing demand for gas.

ROMFORD.

The first Ordinary General Meeting of the Romford Gas Company was held on March 1—Mr. Bevous J. Smith presiding. In moving the adoption of the report and accounts, the Chairman said: The year 1929 has been a record one in every respect. The make of gas has increased by roughly 50 million c.ft. to 447 millions, and no less than 13 miles of mains have been laid, 2161 new consumers added, and 2432 appliances, such as cookers, gas fires, &c., disposed of. The sale of gas for the half-year ended Dec. 31, 1929, has risen from 187 million c.ft. in 1928 to 208 millions in 1929—an increase practically of 21 millions, equalling 11·11 p.ct.—which I am sure you will agree is most satisfactory. The total sale of gas for the year was 434 millions, as against 384 millions in 1928, equalling 12·94 p.ct. for the year. Turning to the capital account you will see that the laying of new mains has called for an expenditure of £5255, representing 5·59 miles of mains of various sizes; £4654 has been expended on new meters to meet the requirements of 1363 new consumers. New stoves have required £10,595; but against this amount sales have amounted to £6833, leaving a net capital expenditure on stoves of £3761. An amount of £1338 has been

[Continued on page 774.]

STOCK AND SHARE LIST.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr.	Dividends. Last Hf. Yr.	NAME.	Quotations. Mar. 14.	Rise or Fall on Week.	Transactions Lowest and Highest Prices During the Week.
£			% p.a.	% p.a.				
171,978	Stk.	Feb. 6	5	5	Aldershot 5 p.c. max. C.	73—78	..	..
522,992	,,	,,	4	4	Do. 4 p.c. Pref.	70—73	..	..
1,551,868	,,	Sept. 26	7⅝	7⅝	Alliance & Dublin Ord.	93—96	..	94½—95
374,000	,,	Jan. 9	4	4	Do. 4 p.c. Deb.	60—63	..	..
522,655	,,	Mar. 6	7	7	Barnet Ord. 7 p.c.	109—112*	..	..
300,000	1	Oct. 24	1/4½	1/4½	Bombay, Ltd	16/- 18/-	..	16/9
174,500	10	Mar. 6	9	9	Bournemouth 5 p.c.	13—14*	+½	13—13¾
500,050	10	,,	7	7	Do. 3 7 p.c.	12¼—12⅝*	..	..
439,160	10	,,	6	6	Do. Pref. 6 p.c.	10¾—11¼*	+½	10⅝
50,000	Stk.	Dec. 19	3	3	Do. 3 p.c. Deb.	53—56	..	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb.	72—75	..	..
357,900	,,	Aug. 29	7½	7½	Brighton & Hove 6 p.c. Con.	113—116	..	..
371,880	,,	,,	6⅔	6⅔	Do. 5 p.c. Con.	100—103	..	..
1,287,500	,,	Feb. 20	5	5	Bristol 5 p.c. max.	86½—87¼a	+½	..
855,000	,,	Sept. 12	7½	7	British Ord.	112—117	..	114—115
100,000	,,	Dec. 19	7	7	Do. 7 p.c. Pref.	109—114	..	..
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb.	69—71	..	..
450 000	,,	,,	5	5	Do. 5 p.c. Red. Deb.	92—95	..	..
100.000	,,	Jan. 9	5	5	Cambridge 5 p.c. Deb.	90—93	..	..
100.000	10	Dec. 5	8	6	Cape Town, Ltd	8½—9½	..	..
100.000	10	Nov. 7	4½	4½	Do. 4½ p.c. Pref.	6½—7½	..	..
150,000	Stk.	Dec. 19	4½	4½	Do. 4½ p.c. Deb.	69—74	..	72½—73
626.860	,,	Feb. 20	6	6	Cardiff Con. Ord.	96—99	..	..
237,860	,,	Jan. 9	7½	7½	Do. 7½ p.c. Red. Deb.	98—101	..	..
157,150	,,	Feb. 20	5	6½	Chester 5 p.c. Ord.	87½—92½b	..	..
98.986	1	Oct. 10	†2/-	†2/-	Colombo, Ltd. Ord.	34/—36/-	..	..
24.495	1	,,	1/4⅜	1/4⅜	Do. 7 p.c. Pref.	19/—21/-	..	..
375,402	1	Oct. 10	1/9⅜	1/9⅜	Colonial Gas Assn. Ld. Ord	20/6—22/6	..	..
187,848	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	20/—22/-	..	..
2,073,280	Stk.	Feb. 20	5	7	Commercial Ord.	87—92	..	88—89
475,000	,,	Dec. 19	3	3	Do. 3 p.c. Deb.	54—57	..	54½
787,560	,,	Feb. 20	7	7	Croydon sliding scale.	102—105	..	103—105
453,100	,,	,,	5	5	Do. max. div.	80—83	..	..
542,270	,,	Mar. 6	7	10	Derby Con.	1 5—125e*	..	..
55,000	,,	Dec. 19	4	4	Do. Deb.	67—70e	..	..
209.000	,,	Mar. 6	5	5	East Hull Ord. 5 p.c.	71—73*	..	..
1,002,180	10	Sept. 12	†7	†4	European, Ltd.	12½—13½	..	12¾—13½
18,629,125	Stk.	Feb. 20	5⅔	5⅔	Gas Light & Coke 4 p.c. Ord.	17/4½-17/10½f	..	17/4½—17/9
			3⅔	3⅔	Do. 3½ p.c. max.	61—63	+⅓	62 62⅓
2,600,000	,,	,,	4	4	Do. 4 p.c. Con. Pref.	75—78	..	76½—76⅝
4,157.020	,,	,,	3	3	Do. 3 p.c. Con. Deb.	56—59	..	57½—59
5,602,620	,,	Dec. 19	5	5	Do. 5 p.c. Red. Deb.	97—100	..	99
2,642,770	,,	,,	7	7	Hastings & St. L. 5 p.c. Conv.	98—103	..	..
82,500	,,	Aug. 29	5½	5½	Do. 3½ p.c. Conv.	78—83	..	79
258,740	,,	,,	†10	†10	Hongkong & China, Ltd.	13⅞—14⅞	..	14½—14¼
70.000	10	Oct. 10	6	6	Hornsey Con. 3½ p.c.	90—98*	..	..
213,200	Stk.	Mar. 6	20	10	Imperial Continental Cap.	345—365	—5	347—360
1,976,000	,,	Nov. 1	3½	3½	Do. 3½ p.c. Red. Deb.	70—75	..	..
223,130	,,	Feb. 6	8	8½	Lea Bridge 5 p.c. Ord.	115—118	..	..
235,242	,,	Aug. 15	6	6	Liverpool 5 p.c. Ord.	88½—89½b	..	..
2,145,907	,,	Feb. 20	7	7	Do. 7 p.c. Red. Pref.	100½—102½b	..	..
600.000	,,	Sept. 26	9	8	Maidstone 5 p.c. Cap.	119—124	..	119½
165,736	,,	Feb. 20	3	3	Do. 3 p.c. Deb.	52—55	..	..
63,480	,,	Dec. 19	†10	†10	Malta & Mediterranean	5½—6	..	..
75,000	5	Dec. 5			Metrop'itan (of Melbourne) 5½ p.c. Red. Deb.	92—95	..	..
392,000	—	Oct. 1	5½	5½	Montevideo, Ltd.	107—112	..	110½
541,920	Stk.	Nov. 21	†9	†6	Newcastle & Gateshead Con.	15/9—16/3d†	..	..
2,061,315	,,	Feb. 20	5	5½	Do. 4 p.c. Pref.	69½—70½d	—½	..
682,856	,,	,,	4	4	Do. 3½ p.c. Deb.	66½—67½d	..	..
691,705	,,	Dec. 19	3½	3½	North Middlesex 6 p.c. Con.	109—114*	..	..
169,940	,,	Mar. 6	7¼	7¼	Northampton 5 p.c. max.	74—77	..	..
396,160	,,	Feb. 6	5	5	Oriental, Ltd.	108—113	..	111—112
300,000	,,	Nov. 21	7	9	Ottoman	0—¼	..	..
60,000	.5	13 My., '15	—	—	Plym'th & Stonehouse 5 p.c.	107—110	..	..
205,162	Stk	Jan. 9	8	8	Portsm'th Con. Stk. 4 p.c. Std	110—115	..	113—113½
424,416	,,	Feb. 20	8	8	Do. 5 p.c. max.	78—81	..	..
241,446	,,	,,	5	5	Primitiva Ord.	27/—29/-	..	28/-
2,334,464	1	June 27	—	15	Do. 4 p.c. Red. Deb.	92—95	..	..
244,500	100	Dec. 2	4	4	Do. 4 p.c. Red. Deb. 1911	77—80	..	..
695,000	Stk.	Jan. 23	4	4	Do. 4 p.c. Cons. Deb.	77—80	..	..
416.345	,,	Dec. 19	4	4	San Paulo 6 p.c. Pref.	8⅞—9½	..	8⅞
150,000	10	Sept. 26	6	6	Sheffield Cons.	105—107e	..	..
1,736,968	Stk.	Aug. 29	6¾	6¼	Do. 4 p.c. Deb.	76—78e	..	..
95,000	,,	Jan. 9	4	4	South African	4—6	..	..
90.000	10	June 13	†4	‡4	South Met. Ord.	97—99	..	97¼—98¾
6,709,895	Stk.	Feb. 20	5	7½	Do. 6 p.c. Irred. Pf.	106—108	..	..
500,000	,,	,,	6	6	Do. 3 p.c. Deb.	55—58	..	57¼
1,895,445	,,	Jan. 9	3	3	Do. 6⅔ p.c. Red. Db.	97—99*	..	..
734,000	,,	Mar. 6	6¼	6¼	South Shields Con.	109—111d	..	..
91,500	,,	Aug. 15	8¼	8¼	South Suburban Ord. 5 p.c.	98—101	..	98¼—99¾
1,543,795	,,	Feb. 20	6⅔	6⅔	Do. 5 p.c. Deb.	92—95	..	..
468,837	,,	Dec. 19	5	5	Southampton Ord. 5 p.c. max.	75—78	..	..
647,740	,,	Feb. 20	5	5	Do. 4 p.c. Deb.	69—72	..	..
121,275	,,	Dec. 19	4	4	Sutton Ord.	113—116	..	..
179,014	,,	Feb. 20	8	8	Do. 5 p.c. Deb.	91—94	..	..
67,828	,,	Jan. 9	5	5	Swansea 7 p.c. Red. Pref.	97—99*	..	98
250,000	,,	Mar. 6	7	7	Do. 6½ p.c. Red. Deb.	99—101	..	..
200,000	,,	Dec. 19	6½	6½	Tottenham District Ord.	99—103*	..	101—102
1,076,490	,,	Mar. 6	6⅔	6⅔	Do. 5½ p.c. Pref.	95—98*	..	..
150,000	,,	,,	5½	5½	Do. 4 p.c. Deb.	70—73	..	..
199,005	,,	Dec. 5	4	4	Tuscan, Ltd.	3⅜—4⅜	..	..
182,380	10	30 Dec., '12	—	—	Do. 6 p.c. Red. Deb.	75—80	..	..
85,701	Stk.	Sept. 26	6	6	Uxbridge, Maidenhead, & Wycombe 5 p.c.	94—99*	..	..
309,094	,,	Mar. 6	7	7	Do. 5 p.c. pref.	83—88*	..	..
83,330	,,	,,	5	5	Wandsworth, Wimbledon, and Epsom Cons.	107—112	+2	106½—107½
1,180,970	,,	—	—	—	Do. 5 p.c. Pref.	85—90	..	..
200,000	,,	Feb. 20	5	5	Do. 5 p.c. Deb.	91—95	..	..
486,344	,,	Dec. 19	5	5				

Quotations at:—a.—Bristol. b.—Liverpool. c.—Nottingham. d.—Newcastle. e.—Sheffield. f.—The quotation is per £1 of Stock. * Ex. div. † Paid free of income-tax. ‡ For year.

STOCK ISSUES.

By Order of the Directors.

COLCHESTER GAS COMPANY.

Messrs. A. & W. RICHARDS

are Instructed to OFFER FOR SALE BY TENDER

£15,000

SIX PER CENT. PREFERENCE STOCK (IRREDEEMABLE).

Minimum Price of Issue, Par.

Prospectus and Form of Tender (which latter must be sent in by 11 o'clock on Thursday, the 3rd of April) may be obtained of A. & W. RICHARDS, 37, WALBROOK, E.C. 4.

COMPANY NOTICES.

BRITISH GAS LIGHT COMPANY, LTD.

NOTICE is Hereby Given that the ANNUAL GENERAL MEETING of the Company will be held at the Chief Office, No. 2, The Abbey Garden, Westminst r, S.W. 1, on Wednesday, the 26th of March, 1930, at 12.30 in the afternoon precisely, to receive the Report of the Directors and the Statement of Accounts for the Year ended 31st December, 1929; to Confirm the payment of the Dividend on the Preference Stock and to confirm the interim Dividend and declare a final Dividend on the Ordinary Stock; also to elect Two Directors, to appoint Two Auditors and fix their Remuneration, and to deal with any Business that may be legally transacted at an Ordinary General Meeting.

NOTICE IS HEREBY ALSO GIVEN that the TRANSFER BOOKS of the ORDINARY STOCK of the Company WILL BE CLOSED from the 12th inst. to the 26th inst.

By order of the Court of Directors,
A. J. MUMFORD,
Secretary.

Chief Office:
No. 2, The Abbey Garden,
Westminster, S.W. 1,
March 10, 1930.

EUROPEAN GAS COMPANY, LTD.

SHARE WARRANTS TO BEARER.

NOTICE is Hereby Given that, in accordance with a Resolution passed at the Annual General Meeting of Shareholders held on the 11th inst., a Dividend of 7s. per share will be payable on and after the 1st April, 1930.

Payment will be made at the National Provincial Bank, Ltd., 7, Princes Street, London, E.C., after Serial Coupon No. 107 has been left three clear days for Examination. This payment is subject to a deduction of 4d. per share for French Stamp and Transfer Duty, which will, however, on certain conditions, be refunded to holders not resident in France, on completion and presentation at the Company's Office of a Form of Declaration to be obtained on application.

F. ELIOT WILLIAMS,
General Manager and Secretary.

Montague House,
Devonshire Square,
London, E.C. 2,
March 11, 1930.

38 YEARS' EXPERIENCE has enabled "BRISTOL'S" to offer THE LARGEST RANGE OF RECORDING INSTRUMENTS, all characterised by their simple, robust design and accuracy.

Recording Volt, Amp. and Watt-meters. Pyrometers. Time, Speed, Motion. Liquid Level Temperature Control, etc.

BUY BRISTOL'S AND BUY THE BEST Particulars from:

J. W. & C. J. PHILLIPS, LTD.,
23, College Hill, Cannon St., London, E.C. 4.

TROTTER, HAINES, & CORBETT LIMITED
BRETTEL'S ESTATE,
FIRE-CLAY & BRICK WORKS,
STOURBRIDGE.

Manufacturers of GAS RETORTS, GLASSHOUSE FURNACE & BLAST FURNACE BRICKS, LUMPS, TILES, and every Description of FIRE BRICKS. Special Lumps, Tiles, and Bricks for Regenerative and Furnace Work.

SHIPMENTS PROMPTLY AND CAREFULLY EXECUTED.

LONDON OFFICE: E. C. BROWN & Co., LEADENHALL CHAMBERS, 4, ST. MARY AXE, E.C.

debited to capital in respect of new offices. The usual amount for depreciation of gasholders, meters, and stoves has been duly written off. The total capital has thereby increased by 4·74 p.ct., whereas the sale of gas has increased by 11·11 p.ct. The balance overdrawn on capital account now appears at £80,152. Turning to revenue account, owing to the fact that 1231 additional tons of coal have been carbonized during the half-year, the expenditure on coal has gone up from £9427 in 1928 to £11,133; but the average cost has been slightly lower. Less oil has been used, and here again the average price paid per gallon has been lower. Purification charges are about the same, also wages. Repairs and maintenance of works and plant calls for £2626, against £4854 in the corresponding half of 1928, but in that half-year £1912 was charged in respect of carburetted water gas plant. Repairs of mains and services show an increase of £676, but when it is realized that 1301 new services have been laid during the half-year, as compared with 932 during the same period in 1928, the increase is easily accounted for. Repairs of meters, which include depreciation, has risen from £1503 to £1770, and repairs of stoves from £1799 to £1989. The sale of gas, meters, and stove rent, prepayment meters and fittings, residual products, &c., have produced a total of £51,022, against an expenditure of £40,688, leaving a gross net revenue profit of £10,334, which, after declaring dividends for the half-year on the ordinary stock of 3 p.ct.; on the 6 p.ct. redeemable preference stock, 3 p.ct.; and on the 5½ p.ct. preference stock, 2¾ p.ct., together with amount required for reserve fund, debenture interest, and other charges, leaves a slightly larger carry forward of £3906 to the credit of the current year. At an extraordinary meeting which followed, the raising of new capital and borrowing powers were sanctioned and also a profit-sharing scheme for employees.

SHEFFIELD.

The 130th Ordinary General Meeting of the shareholders of the Sheffield Gas Company was held at the Company's Offices, Sheffield, on March 10—Lieut.-Col. H. K. Stephenson, D.S.O. (Chairman of the Board), presiding. Moving the annual report of the Directors, the Chairman said: We have an over-spent balance on capital account of some £7688, but in view of our ample liquid resources this is not a matter with which we need concern ourselves. Turning to the revenue account, you will see that, after making full provision for all liabilities, there remains a balance on the year's working of £157,409, as compared with £168,460 a year go. The decrease in revenue arises mainly from two causes—first, the reduction in the prices charged for gas, which came into force in the latter half of 1928, and of which we are now feeling the full effect, and, secondly, the decline in prices of residuals. This latter feature will affect us less in the future, because the more coke oven gas we take the less residuals we shall have for disposal, and, on the other hand, we shall, I hope, soon feel the full benefit of our increasing purchases of coke oven gas. In other words, the past year has been a period of transition, a condition of affairs from which we can only gradually emerge. The quantity of gas sold again shows a satisfactory increase, partly due to the cold weather which we experienced in the early part of last year. Your Board recommend the payment of a final dividend of £3 5s. p.ct., making, with the interim dividend already paid, a total dividend of 6½ p.ct. for the year, the same as a year ago. After providing for dividends, interest, and consumers' benefit, there will be £74,884 to carry forward, as compared with £83,294 a year ago. During the year 934 additional street lamps were erected in the city. In the Dronfield area old contracts for public lighting have been renewed and new contracts made on satisfactory terms, while for the Wortley Rural District Council we have erected 21 street lamps in the Worral area. There has been an increase of 1295 in the number of meters fixed during the year, and the demand for prepayment installations continues, most of them accompanied by orders for fittings. In all, some 3695 prepayment meters have been fixed, bringing our total of such installations up to nearly 36,000. I am glad to be able to record a further increase during the past year, both in the number and value of sales of fittings. Some 25,948 sales were effected through our various showrooms and other agencies of the total value of £27,404, being an increase over 1928 of 248 sales and £568 net cash. During the past year there were some 130 conversions from electricity to gas. During the year, too, some 260 estimates for gas installations, large and small, amounting in the aggregate to £4650, were accepted, and the nature of some of the contracts furnish ample evidence that gas is not only holding its own, but is making satisfactory headway. The demand for our gas for industrial purposes has been well maintained, and at the low prices we are now charging is, I think, likely to increase. We have supplied and fixed over 100 new gas-fired furnaces during the year, which is the greatest number since the boom years following the war. In addition to supplying new furnaces we have converted many others to gas, while a number of firms have carried out similar conversions themselves. Many inquiries are being received as to the suitability of our gas for bulk heating operations, for which town gas has hitherto been considered too expensive a proposition. As an instance I may mention that during the past year a furnace has been fixed capable of heating billets for forging at the rate of 24 cwt. per hour, and so successful have been the results that an order for 16 similar furnaces has been placed by the same consumer. A demand for gas is also springing up to displace coke for use with central heating boilers. The plant standing idle due to our taking so much coke oven gas is always in readiness to meet any emergency, while as a further precaution we have increased the capacity of the carburetted water gas plant, which can be put into operation at a few hours' notice.

SWANSEA.

The Annual General Meeting of the proprietors of the Swansea Gas Light Company was held on Wednesday, Feb. 26, at the Offices, Oystermouth Road, Swansea—Mr. Ernest H. Leeder (Chairman of the Company) presiding. The Chairman, prior to moving the adoption of the report and statement of accounts, said: You will, of course, recognize how necessary it is for the Company to keep abreast with the development of the town, and that we are maintaining such a policy is evidenced by the increase, revealed in the gross revenue account, of gas sales to private consumers. It is true that such increase is only 3,780,000 c.ft., or 17,011 therms, but in these days of depression it is encouraging to be able to record an increase no matter how small. The increased assessment of the Company's works and mains resulting from the Rating and Valuation Act, 1925, has had the effect of increasing the amount in respect of local taxation from £14,133 to £15,872, and this increase of £1740 is equivalent to an additional charge on the gas of approximately 1d. for every 1000 c.ft. sold. The actual cost during the past year in respect of rates is 5·85d. per 1000 c.ft. sold, and from comparative figures we have obtained, we find that at Swansea we are more heavily handicapped in regard to this direct charge on the cost of our commodity than are the majority of either neighbouring towns or towns in England. The Directors have decided to make a reduction in the price of gas of 0·1d. per therm as from the reading of the meter indices at the end of the March quarter. Further, with a view to encouraging the increased use of gas, they have also decided to institute from the above date a scale of differential prices of gas.

TUNBRIDGE WELLS.

The Annual General Meeting of stockholders of the Tunbridge Wells Gas Company was held at the Offices, 44, High Street, Tunbridge Wells, on Friday, Feb. 28—the Chairman of Directors, Mr. Harold A. Beeching, presiding. The accounts showed that after deducting the interim dividend at the rate of £7 4s. p.ct. per annum on the sliding-scale stock, and £5 p.ct. per annum on the maximum dividend stock, providing for all fixed charges, and carrying £2500 to the renewal fund, and £2500 to the reserve fund, there remained for division a balance of £33,068; and the Directors recommended the declaration of the dividend at the same rates (*less* income-tax) for the half-year to Dec. 31, 1929, leaving a balance of £26,566. The Chairman, in moving the adoption of the report and accounts, said: The gas sold was 2,586,000 therms, which is an equivalent of 572,093,000 c.ft., being 161,552 therms, or 35,902,000 c.ft., increase over the previous year. Manufacturing costs were much the same as last year, though they appear to be about £2400 more. The renewals account now totals £12,500. We have decided to proceed with the erection of a new holder of about 1½ million c.ft. capacity, and hope to commence this at an early date, H.M. Treasury to pay interest for three years, or possibly more, on the loan required. We are also about to take in hand the condensing and washing plant. Our present condensers and tower scrubbers were erected something like 50 years ago. They have done their work well, but are really worn out, and will be replaced by modern water tube condensers and rotary brush washers. The cost of coal was about £800 less. Distribution costs are about £570 lower, rather less having been spent on repairs and maintenance of works and plant. Public lamps, rates and taxes, and management are all about the same. There is then an item, Tunbridge Wells Gas Order, 1929, on account of costs, £400. The last accounts show an item for that of £650, and there is still owing about £300 or £400 to complete. Co-partnership bonus and pension funds show slight increases. The pension fund now stands at £12,057, less invested, £5743. That is invested in thoroughly sound securities, leaving £6314, which is on deposit at the present time with the Company. In due course we hope that will be invested, also probably outside the Company. There is a fine co-partnership spirit among the whole of the staff and employees. I cannot speak too highly of the value of this co-partnership. The number of co-partners we have at the present time is 160, and 127 of these hold stock in the Company. The total expenditure now is £116,801, leaving a balance to be carried to the profit and loss account of £27,818. On the opposite side of the revenue account we have the sale of gas, which has realized nearly £5000 more in cash, though the price was the same. Rental of meters, stoves, and cookers shows a satisfactory increase, and testifies to the steady expansion in the Company's business, and in the number of our consumers, who have now reached 13,905, which, of course, includes those taken over from Crowborough. New gas appliances fixed on hire and sold during 1929 total 1411.

WATFORD AND ST. ALBANS.

A Meeting of the shareholders of the Watford and St. Albans Gas Company was held at the Gas-Works, Watford, on Thursday, Feb. 27—Mr. F. Harding Jones (Chairman) presiding. The report of the Directors for the year ended Dec. 31, 1929, has already appeared in the "JOURNAL." The Chairman said that, after paying all the proper charges, the Watford Company showed a balance of £16,000 and the St. Albans Company of £11,000. The reserve fund of the combined Company was £17,000, and the special purposes fund, £20,000. There had been a considerable sale of gas both at Watford and St. Albans. The unaccounted-for gas in both areas was very low—St. Albans being even a little lower than Watford. The total number of consumers was now 24,000, being 8000 in St. Albans and 16,000 in Watford. Nearly all the workmen of the Watford Company were co-partners and shareholders of the Company, and that would in future also apply to the employees of the St. Albans Company. Last year was the first year that an actual bonus had been literally credited to them. The St. Albans employees would also come in under the pensions scheme that was inaugurated some years ago. Mr. H. Brown seconded the resolution, which was carried, and the dividends as recommended in the report were declared. An extraordinary general meeting followed to pass resolutions dealing with the acquisition of the Elstree and Boreham Wood Gas Company, Ltd. These were moved from the chair. The first sought approval of a provisional agreement dated Nov. 27, 1929, providing for the transfer of the undertaking. The Chairman explained that this had been approved unanimously by the Elstree shareholders. It provided that the charge for gas should be 3d. per therm in excess of the prices in the Borough of Watford and St. Albans; and further, that the Watford Company should apply for powers.